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SYMPOSIUM:

THE RECENT PROGRESS IN THE KNOWLEDGE AND TREATMENT OF DISEASES OF THE UPPER RESPIRATORY TRACT.

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RECENT PROGRESS IN THE KNOWLEDGE AND TREATMENT OF DISEASES OF THE UPPER RESPIRATORY TRACT: THE NOSE AND ACCESSORY NASAL SINUSES.*

BY HENRY L. SWAIN, M. D., NEW HAVEN, CONN.

In keeping with the general title this paper will take up, under several captions, the subject-matter as applied to the nose and its tributary parts, stating only a very few of the changes wrought by recent work, and pausing here and there to point out some avenues but little traversed or scarcely entered, further pursuit of which would seem about to lead to knowledge of the utmost value. We shall speak of etiology and pathology, new methods of diagnosis, and treatment, surgical and non-surgical, under the latter head, including local and general anesthetics and serum, and other treatments general and local.

The perfectly enormous amount of literature on the subjects of infection and immunity, as impossible for one mind to grasp, as it

*Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, April 7, 1910.

is for one paper to compass, has been tremendously fruitful in its suggestions to the general medical world, and we in rhinological work have profited greatly thereby. Much of this work has but rendered more impressive certain long-known basic facts and demonstrated the need of our giving them greater attention. Healthy membranes covered by healthy cells in a healthy, well-fed and well-kept body seldom fall a prey to infection. The reverse is often equally true. The equilibrium between health and disease is sometimes difficult to analyze, but, expressed in its simplest form, involves, in the case of the nose, first and foremost, the complete integrity of the outer layer of the mucous membrane. The whole protective mechanism in the nose is really one of construction and maintenance. If we erect a wooden building, we can do it along lines which make for tight joints and with no places for moisture to enter and there to be retained. Such construction would tend to conserve the integrity of the structure. The whole could then be covered by a coating impermeable to moisture. If rightly constructed and adequately protected by good paint it would stand a long time. Deprived of its protective covering, the wood rots, the structure leans, then totters, and finally falls. So with man's nose; if the ciliated epithelium is intact, germs and deleterious matter are wafted downwards and backwards into the throat and there disposed of. A free flow of bland serum oozes between the cells of the epithelium, and this bathes the surfaces, helping by mere mechanical action to keep the membrane clean. In years past it has been proved that this serum in its healthy state, while not antiseptic or deadly to germs, tends to inhibit germ growth. The presense of this fluid is also essential, and vitally essential to the health and activity of the surface cells and the mobility of the cilia of the epithelium. In its interior the normally constructed nose is so made that everything can be moved along and there are no retention spots. Normally there is not much real mucus present on the surface, and this is of the blandest and thinnest type. When the danger signals are set and when an invader is to be kept away or an irritant kept off from the membrane, then great activity of the mucous glands gives abundant mucus to act as a coating to protect the cells and to enmesh and thus render innocuous the invaders. Matter which enters the nose may be inert, as various kinds of dust. In these days, living in the cities as most of us do, our cells become accustomed to dirt. It calls forth no special reaction on the part of the cells, except that it must be removed. When in too great quantities for our very tolerant cells

to endure, it is often washed away by a call being sent in to the central nervous system to supply more serum or more mucus. This call may be local or general, and may come from the epithelial cells themselves, or, if they die early in the game, from the cells of the tissue beneath or of that surrounding the area which is out of commission.

Reduced then to its lowest terms, we are, as said before, all dependent upon the integrity and in a way upon the intelligence or alertness of the epithelial cells. This is particularly so in the tonsils or lymphoid areas, as has been so ably demonstrated and studied by our own Jonathan Wright. The question has been often asked by those who carry their investigations thus far, how can it be true that, as he has shown in the case of the tonsils, when the equilibrium is maintained, inert matter like cinnabar is allowed to pass freely into the tonsils in the current of inflow without let or hindrance. Leptothritic threads are allowed to lie upon or among the cells of the outer layer, but are not permitted to pass beyond, while the pathogenic germ is not only allowed to enter, but is actually kept off the membrane, repelled, never being found in the spaces between the epithelial cells, but outside in the crypt mingled with the leucocytes or lymphocytes which have emigrated or have been washed out by the outward flow of lymph. The epithelial cells themselves seem to have an absolute antagonism for these germs. Apparently only when the equilibrium is disturbed can the germs be found in the substance of the tonsil. This is quite as probably true of the active ciliated epithelium of the nose.

Now, such an action on the part of the cells seems to involve almost an intelligence, and seems almost beyond credence, and to explain it all sorts of theories have been abundantly discussed. Up to the present we have known in a general way that mono-cellular organisms actually did what we have insisted, the epithelial cell does more or less efficiently everywhere that such potentialities are shown, as evidenced in the tonsil and in the waving cilia of the epithelium of the nose, but the matter had never been consistently studied. There exists a mono-cellular organism to which the name stentor caeruleus has been given, and upon the surface of this mono-cellular organism there exist cilia similar to those which characterize the ciliated epithelium of our bodies. A. A. Schaeffer* has studied the habits of this cell under the microscope and has been able to discover substances that were pleasing or acceptable to

*Jour. of Experimental Zool., Vol. 8, No. 1.

it, and also those that were not. Apparently when so disposed the stentor is able to have its cilia waft toward its pouch substances which it likes or chooses, these being sometimes incorporated into the interior of the cell and later either modified, assimilated or thrown out again; but when anything comes along that the stentor does not choose to take in or does not like, then the cilia waft this material away from the cell body. Such things are rejected. He is able at least to distinguish three kinds of matter: inert matter, living matter and that kind of living matter which it prefers for food. When hungry he, like his multicellular neighbors of the genus homo-sapiens will eat anything which it is easy to get, but when sated or when the kind of food he likes is present, he always will select it and eschew the others. Thus we have the whole phenomenon of cell existence exemplified and the whole process of our protective organism typified. What this cell does each and all of our protective cells must and do accomplish for us, and upon these kind offices hangs our health, our very existence. Now, if we could understand just how the stentor does this, being as he is but a single cell, how he does this great work of selection and sends his cilia vibrating one way or the other, we would be in a much better position to understand and combat disease. Wright, who is simply indefatigable, has carried his studies and his hypotheses much further than most of us can follow him, and whether this power of the cell is an ultimate result of mere surface tension or the attraction or repulsion of electrically alike or different particles, or even a refined chemical or chemotactic process, we must not now stop to discuss. Certainly in the stentor it seems much more than a mere physical phenomenon. But it is a refreshing sign of the times that men do once in a while stop hacking and hewing at the inexpedient angles of the structure and consider the nature and the preservation of an intact covering to conserve the life of the component parts.

Just such studies as these, many of them most abstruse in their character, have yet enabled the laboratory men to evolve matter of the utmost import, not merely from the scientific standpoint, but have served as a basis for the most epoch-making discoveries that recent years have brought forth. We need mention only a few of them in passing to make it evident that the point is well taken. We refer to parthogenesis, to anaphylaxis, to antitoxins, to serum therapy, to autogenous and stock vaccines, to the complicated reactions bristling with such terms as amboceptor, antigen, compliment. They make us understand hemolysis, give us insight into

the life-history of germs themselves, so that we inoculate one germ to kill another, and make possible such conceptions of the problems of hygiene and prophylaxis as were never dreamed of in days gone by.

These, I say, are most encouraging signs, and are in keeping with the progress along all lines which we have applied to our particular field, and it is interesting that while this contemplation which we have had together logically led us into one of those avenues referred to in the beginning of this article, it also leads us to deductions which are in the spirit of the age and the present time. We have grown to be a great nation, the greatest on earth. This was our destiny. We simply fulfilled it, as it were, sacrificing many times everything in the way, so that we might accomplish it. Our resources, our strength and often well nigh our integrity were lavishly expended to obtain the end. We were really jesuitical in that we thought that the end justified the means. For a long time a cry was made, faint and persistent, gradually becoming importunate, until finally to the logic of even this mercenary age came the call so strong, so insistent, that it must be heeded, and there arose that new kind of individual known as the conservatist and we now talk quite glibly of conserving our natural and national resources. So much to the fore is this subject that it is well-nigh disrupting the dominant political party. And is it not also the logic of what I have at some length and with some weariness to your souls presented to you, viz.: that if we only can conserve the integrity of the structures, can keep intact the epithelium, and will strive in our treatment of acute conditions to make use of all the knowledge we are daily gaining, shall we not contribute our mite to that grand millennium of therapy when it will be no longer necessary to view the gory fields of battle where septum and sinus vie with each other as they exhibit their ghastly scars and deformities, the result of the sad affray. The glories of the battle, the victories of the sword have ever been more widely heralded than those of peace, diplomacy and reconstruction, although these have made real whatever progress has come out of the opportunities the former have created. Both were perhaps necessary, but I leave it to you, if we only knew better how to take care of common colds and acute infections, as recently suggested by Kyle,* would we not find less opportunity for our surgery, and do you not feel that in the last few years on the whole we less often find it necessary to operate, and is not this an encouraging sign of the times worth chronicling?

*Ann. of Otol., Rhinol. and Laryngol., Sept., 1909.

In corresponding with your able and versatile chairman, he mentioned, among other matters which showed our progress in this field of work, this very question of the proper handling of acute infections of the nasal mucosa and that it was being more carefully considered and carried out, thereby preventing the more serious complications.

We as a profession are the most altruistic in the world. We constantly, never ceasingly try to teach people so that they can learn to care for themselves in such a way that if they only could and would make use of what we freely give them, they could soon get along with about half of us. And we "rhino-laryngologues" are not to be outdone by any of the other "logues." We have been struggling in the last few years to apply to our therapeutic armamentarium all the knowledge that we could make use of from the other departments of research, and we in our turn have modestly and unostentatiously tried to contribute from our own work that which would be helpful to our associates who care for other portions of the body.

A good deal has been written and still more said, to have the relationship of disease of the accessory sinuses to those of the eye and orbit and head properly understood. We have stood with the ear men to try and have the necessity of proper care of the nose and throat of first importance in warding off the tremendously serious complications of acute ear infections and to keep away those insidious chronic affairs which lead to deafness. We have often outlined how we think occasionally a grippe meningitis or a meningitis the result of grippe occurs through the medium of infection from the nasal surfaces. I have seen within a few weeks, a case of acute sphenoidal sinusitis where the symptoms of most intense general headache, somnolence, temperature of 104.2°, stiffness of the neck, and fairly well defined Kernig sign, made a picture of the utmost and increasing gravity for several days. We were about to use a lumbar puncture to assist in diagnosis, when the recognition of the involvement of the sphenoid and the proper treatment of it cleared the whole matter up. I have not the slightest doubt but that thereby the meningitis was actually prevented. Warnings of this character, we, as rhinologists, have been constantly sending out, and it may not be at all boastful on our part if we feel that we have assisted somewhat in the proper understanding of these affairs.

Apropos of the perennial question of ozena which often has for its very first pathologic change the loss of the ciliated epithe-

lium, considerable light has been given to the etiology by properly bringing forward the fact that many co-called ozenic cases are really nothing but obscure cases of sinus disease. And the older idea of the shape of the nasal chambers having something to do with the occurrence of this queer disease, has recently again been brought to the fore in new habiliments, the outcome of recent study.

Speaking about avenues of research, it has often seemed to me that the conception of the problem of hay-fever as it was brought forward to us by Dunbar, was one of the most remarkable and picturesque applications of laboratory research and study to the knowledge and treatment of disease. With you all I have to deplore the fact that it is not more fruitful in its results, but just as occurred with the Koch's tuberculin when originally exploited in its immature conception, that it did more harm than good, so I have the faith to believe that further study and research along similar lines to those of Dunbar, with the co-operation of all of us, will lead, as it has in the case of Koch's tuberculin, to a vastly different understanding of the situation and to therapeutic uses not now dreamed of. To this end such studies as those of Kyle which have in mind the chemistry of nasal secretions, must bring the greatest assistance.

Much progress has also been made by such researches as those of Loeb and Lincoln and Mosher in making us better understand the anatomy of the sinuses. We have been immensely helped out in our understanding of the relationship of one cavity to another by the splendid work of Coakley, Coffin, and so many others, who have given us the benefit of their knowledge gained by X-raying and getting radiographic pictures of the living subjects. We also now-a-days understand better what nasal polyps are. Our knowledge of the function of the nose and of the necessity of keeping a healthy mucous membrane makes us more careful of turbinate tissues, and as we shall venture once more to speak about when we refer to therapeutic advances surgical and non-surgical, the tendency to conservatism as the result of this information has been as refreshing as it is hopeful.

Regarding diagnosis we have not been slow to take up the help given us from other fields, and have assisted in developing some of them to greater perfection. Since the introduction of trans-illumination nothing has been more helpful than such work, to which I have already called your attention, as has been done in the way of exploiting X-ray diagnosis of sinus disease. We have not all of us

the apparatus, and we lack that broad experience which results in such good photos as Caldwell is able to make, but the impetus has been given, and we are all doing every year better work.

We have not been backward in our nasal work to take advantage of cutaneous and other reactions such as Wassermann's, the von Pirquet, and tuberculin, and we can be relied upon to show many a case where these reactions may show their power.

While not exactly appropriate to the subject of diagnosis, but more especially perhaps to the cause of prophylaxis, we have discovered (just as the general medical man has found that many a person is a typhoid distributor and becomes a common carrier of typhoid) that many a patient is for months at least, if not longer, a free distributor of diphtheria, and the study of the germs as they exist in the nose is prolific of results tending toward a better diagnosis, and very frequently to a better prognosis.

As we hurry, however, to the brilliant field of therapeutics we have there so many things to chronicle that I must be most brief in my reference to them. To hark back once more to the question of conservatism in the field of applied surgery, we have certainly demonstrated in practice what I have professed in theory. Your Chairman called my attention to the "practical discontinuance of the electro-cautery." Looking back, as some of us can, to twenty-five and thirty years ago, when our specialty was young and the galvano-cautery was the only means that we possessed of seriously combatting the changes which chronic inflammation made in the mucous membranes of the nose, so frequently was the cautery used, so freely was it applied, that we were often taunted with the fact that some of the active workers seemed to be foes to mucous membrane wherever found, and much harm was done. Cases of atrophic rhinitis were undoubtely started by the excessive contractions brought about by scar tissue and the destruction of ciliated epithelium. Whether I should go as far as your Chairman in stating the practical discontinuance of this remedy, is a matter of discussion, but certain it is that we all of us are inclined to use it less often and less freely than of old. Whether this is because the nature of the disease-processes within the nose has markedly changed since the advent of la grippe and its having become endemic among us, it is not possible for me to say definitely, and yet I believe it. The enormous increase of sinus disease since the grippe has been with us may have possibly called our attention away from a very useful agent. It, however, seems to fit in very

well with the views that we have expressed concerning the conservation of tissue, and is in line with yeoman work as that of Yankauer, who endeavors, in doing turbinectomies and other operative procedures in the nose, to preserve as much as possible the normal mucous membrane, and if this reaction against the galvanocautery has back of it this sentiment, let us hope that it may be a permanent change in our work. If we all possessed the ingenuity of Dr. Yankauer, I believe it would be very much better for the noses of our clientele, but it certainly is a thought that we should not lose sight of that the erectile tissue and mucous membrane are things to keep if we possibly can. I am sure this has been still further borne out by the splendid work that has been done in perfecting the operation of submucous resection. Here a tiny slit is made, and from the space between the mucous membranes on each side of the septum the bone is removed, leaving intact the epithelial and other coverings, save for such traumatism as a difficult operation sometimes compels us to make. Here, again, we have refrained as much as possible from destroying mucous membrane. Whether the recent suggestion of making an incision on both sides of the septum by lessening the time of the operation and thus the traumatism, will produce better results, remains to be seen.

Once again, the conservatists are getting in good work. Notwithstanding all the brilliant efforts that have been made the world over (and there have been none better anywhere than by some of you men here in New York, who are within the sound of my voice) still, notwithstanding all this, I say, if one judges of work done by what the literature presents, we are certainly, in the last two years, hearing more about methods of opening the frontal and other sinuses, first thoroughly through the nose before resorting to the external operations which tend to greater of less disfigurement, and in that way, it seems to me, we also keep the nose in better shape to do the work for which it was originally intended. Very much has been done in the last two years to make, for instance, the antrum operation intra-nasally, and I believe it is better done in this way than it is by any of the external operations, where it is at all possible. In line with these statements comes the idea of using bismuth paste—a suggestion which we have adopted from the experience of the general surgeons—filling up the individual sinuses or the whole nasal cavity according to the exigencies of the occasion. As judged by reports from Beck of Chicago and others we are justified in expecting good results from its use.. There will, how-

even, be every now and then occasions in the case of the frontal sinus at least, when intra-cranial complications present symptoms with which they can be no parleying. Here we must and will open externally in order that we may better see, drain and care for the collected pus in its dangerous proximity to or in its actual embodiment in the brain substance.

Our meningitis cases, whether they come from the nose or whether they come from the ear, will soon have the same chance, I am sure, if the time has not already arrived, as is now possible in cerebrospinal meningitis, thanks to the splendid work of Flexner and others. Enough investigation has been done in this line to give us a live hope for better things to come especially when we take into consideration the help which in desperate cases spinal puncture and ergot hypodermically injected have already given us.

Very recently knowledge has come to me as a new idea that a vaccine prepared from a hay-fever subject exactly as for a purulent rhinitis has been most useful in limiting the trouble. Also as a result of hemolytic work, rabbit's serum is being injected to increase the coagulability of the blood in violent bleeding from the nose.

In the case of discharge from the nasal sinuses, or where in the grave cases operative intervention has not succeeded in accomplishing all that it should, or where said intervention is refused or is inadvisable, we have attempted, as in the case of ear diseases, to use stock vaccines or vaccines produced by the cultivation of the germs within the patient, the so-called autogenous vaccines. This work, too, represents another of those avenues down which we have gone only a short distance, but enough has been done to give us the utmost hope that we may shorten the progress of the ordinary cases by the use of these materials, and perhaps save here and there the grave ones. In looking over the very considerable literature two points have seemed to be emphasized by experience, autogenous seem to be a bit more effective than stock vaccines and staphyloccoccus injections respond much more readily than the other varieties. To this I have to add a mite of individual experience, which is of negative value, that I have as yet to see any marked effect from these vaccines in serious pneumococcus or streptocccus infections, rather supporting the deductions from literature.

A very interesting case, has recently come to my knowledge where my associate, Dr. Sperry,* had used the substance, which

*Yale Med. Jour., February, 1910.

has come somewhat to the fore in recent years, called massolin. You are all familiar with it and its use in atrophic rhinitis, about which we will speak in a few moments. In the case I have in mind there had acutely resulted in a child of 7½ years following suppuration of the cervical lymph nodes, not only a double purulent otitis media, with openings of both mastoids, but there had been a pansinusitis of both nasal cavities and both frontal sinuses had been opened, and as discharge came from both ethmoid regions these had been practically entirely curetted away. Here both stock and autogenous cultures of staphyloccocus had been generously injected with no improvement; the various cavities discharged for a period extending from August to December last with apparently no let up. All surgical means possible had been adopted. The use of massolin dropped into the sinus cavities and into the ethmoid region with a simple dropper, as well as into the ear regions which had refused to heal, produced in two weeks a complete cessation of discharge and a practical healing of all these various discharging surfaces. Even though this is but a single instances, as a contribution to the helpfulness of massolin it is worthy of your attention.

And now, just a word about massolin, about which you gentlemen in New York certainly know more than I. I have from my own experience simply to chronicle that there have been a number of obstinate cases of discharge and scab formation within the nose as well as some of genuine atrophic rhinitis, in which massolin has been of the utmost help, and whereas the work is new and we all have a right to speak of our experiences, enough has been done here in New York to make us believe that we have an agent of much power and effectiveness in dealing with genuine ozenas. In simple purulent discharge from the nasal accessory sinuses I have personally scored nothing but failure.

Mention should be made here that in the infrequent cases which we meet of tuberculosis of this region, not only are we justified in using tuberculin for diagnostic purposes, but as has been proved a number of times in my recent experience concerning tubercular laryngitis, I believe that rightfully used, in small enough doses, over a long enough period, tuberculin is an agent perfectly safe and of occasional utmost value.

We should not fail, in this connection, to also call attention to the work that has been done by the so-called Hiss lymph or serum, only recently spoken of, where the leucocytes derived from inflam-

matory exudates of the plural cavity, have been used to aid the leucocytes of the body in throwing off the infective process. Purely the result of scientific study as this sort of work is, we rejoice in the fact that there are men who are brilliant enough to put one and two together and thus apply them.

It may not be amiss to mention another fact; that as simple a substance as brewers' yeast, when given internally, has an undoubted effect upon a purulent process, and does seem to limit the duration of acute affections.

Concerning anesthetics general and local we are no longer as much hampered as we used to be by necessary adherence to one substance or method. Cocaine, which is still our main reliance, has had numerous rivals, and we now can use eucaine and alypin when we so desire. The latter has been proposed as an addition to sprays where, as in hay-fever we wish to somewhat benumb an extremely sensitive area. Combined with adrenalin in certain cases we can obtain apparently with perfect safety as regards habit formation of either the individual or of the tissues, practically the same effects as with cocaine. This is nearly, though not quite as true of its effects as local anesthetic for operative purposes.

For those of us who must often work upon the nose or face, or as far as that is concerned, anywhere upon the skull, it will be with a feeling of warm welcome that we learn that work enough has already been done on animals and a few humans to prove the perfect safety and effectiveness of rectal anesthesia. That is, general anesthesia will be begun and the patient thoroughly placed under the anesthetic in the usual way. Then the narcosis is continued by a new rectal apparatus, by which a measured dose can be administered as long as it is necessary. This will remove the anesthetist and the ether cone entirely from our field of work—"a consummation devoutly to be wished."

232 York Street.

RECENT PROGRESS IN KNOWLEDGE AND TREATMENT OF UPPER RESPIRATORY TRACT: THE ORO- AND NASO-PHARYNX.*

BY W. K. SIMPSON, M. D., NEW YORK.

It has often been quoted that medicine was far from an exact science, and while this accusation may hold in part, still, I think all will admit, from the gigantic strides of recent years, that we have more than merged from the empiricisms and theories of the past, and that medicine of to-day is fast approaching a remarkable degree of exactness. All departments of our science testify to this advancement, including, to a marked degree, the diseases of the upper respiratory tract, which forms the subject of this evening's symposium, and, I think, we may safely say that this entire region, with its many difficulties, is, by our present means of precision, practically under our complete control as far as inspection and diagnosis are concerned.

In presenting the topic delegated to me, namely, the Naso-and Oro-Pharynx, I shall refrain from discussing well-established facts and conditions, which will not benefit by repetition, referring only to some of those which more or less recently have been the subject of active medical thought.

Relative to the naso-pharynx, it must be said that the importance of adenoid vegetations, in all their relations, has become so thoroughly grounded, both in the lay and medical mind, that that which was once considered in the light of fadism or over zealous medical enthusiasm, is now recognized in all quarters as a subject of the most vital importance.

Among the most recent and important advances in the examination of the naso-pharynx, may be mentioned the Hays' Pharyngoscope (an adaptation of the cystoscope), by which means in the great majority of instances, the whole field of the naso-pharynx may be leisurely examined in detail, with a minimum of trouble to the patient. It is surprising how, by its use, even in very young patients, a complete picture of the vault of the pharynx may be obtained, thus doing away with the annoyance of digital examination and the difficulty of the ordinary rhinoscopic mirror. In older

*Read before the Section on Laryngology and Rhinology of the New York Academy of Medicine, February 23, 1910.

patients, to those who are not expert in the use of the rhinoscopic mirror, the use of the Hays' Pharyngoscope reduces the examination of this region to comparative simplicity. Among its benefits may be mentioned the mapping out of various hypertrophies and adhesions about the fossa of Rosenmüller and their removal under vision, through the anterior nares with the pharyngoscope *in situ*. Also the ease with which the Eustachian orifices may be seen, and their catheterization and bougieing accomplished under complete visual control. I do not mean to imply that the pharyngoscope completely supercedes the rhinoscopic mirror in all cases in competent hands, but there are many occasions, in both young and older patients, where an intolerance of manipulation renders the ordinary method difficult or impossible, which difficulty is entirely overcome by the pharyngoscope, and a complete examination is thus easily procured. As in all processes of examination, so in the use of the pharyngoscope, a certain familiarity must be obtained and certain details observed. It is a well-known experience that nearly all examinations in children are attended with more or less apprehension; so the first thing necessary in the use of this instrument, is to gain the confidence of the child, with the assurance that he is not going to be hurt, especially not going to be burned by the lamps, which, as a rule, is his first dread. In passing, I may say that the lamps are "cold lamps" which may be used almost indefinitely without imparting the sense of heat. In nearly all, if not in all cases of both young and older patients, it is best to cocainize the pharyngeal wall, to prevent the irritation of contact,—then with the patient at the proper height, the tongue is depressed with a narrow tongue spatula, the instrument introduced, with the distal prism upwards, behind the soft palate, short of touching the pharynx, the spatula removed, then the instrument being used as a depressor, the patient is asked to close the lips tightly, breathe easily, with palate relaxed, and steadying the head with your left hand, the examination is made by looking through the proximal lens of the instrument; the telescope may be turned at different angles so as to bring the various areas of the pharyngeal vault into view. As the breath of the patient is liable to condense on the distal lens, it is best to rub a little soap or other lubricant on the lens to preserve its brightness. It is best not to use heat as with the ordinary mirrors, as the material holding the lens is liable to melt.

It goes without saying that the examination of older patients by means of this instrument, is much easier in all ways, than that of children. The light may be derived from an ordinary dry-cell bat-

tery which may easily be carried about, or by a reducer when the street current is used. The view that one obtains within the naso-pharynx is somewhat magnified, and one must accustom himself to this slight appearance of hypertrophy.

Although it is scarcely within my province this evening, I may say that the pharyngoscope may be used almost with equal facility in the examination of the larynx, with the same attention to detail, only that the proximal lens is turned downwards. The laryngeal picture thus obtained is complete, though somewhat smaller than by the usual laryngeal mirror. It is especially useful in this relation, examining patients in bed who by virtue of their illness cannot be placed in the upright position. I have dwelt on the use of this instrument in detail, as I consider it one of the most valuable additions to our recent modes for examination.

The present establishment as a separate lesion, of ulcero-membranous angina, due to the bacillus of Vincent—hence the name of "Vincent's Angina" marks an advancement in pharyngeal and tonsillar affections, and also emphasizes the close relation between laboratory and clinical observations. The recognition of this lesion clears up many errors and perplexities of previous days, when it was mistaken for syphilis, diphtheria, chronic folliculitis and other ulcerative conditions.

The relation of spirochaetae-pallida to primary and especially to secondary syphilitic lesions of the fauces, plays a very important part in recent positiveness of diagnosis of those affections. A typical case of primary or secondary syphilis in this region, is easy of recognition, but in doubtful or poorly-defined instances, the laboratory finding of this protozoa establishes a diagnosis, and guides us in our method of treatment.

The lesions of tertiary syphilis in the pharynx, are, as a rule, of such a nature, that they may be established by gross clinical observation. Hence, the necessity of confirmation by the more recent Wassermann serum test does not become as necessary as in other portions of the body where the syphilitic foci can not be observed.

The oral cavity and, hence, the pharynx, is so abundant in various forms of organisms, that a wide field has been opened for their active study in various forms of infections; the streptococci, staphylococci, Kleb-Loeffler and tubercular bacilli, together with those mentioned previously, are the ones which perhaps have claimed more recent attention as being causative factors in inflammatory actions.

The present status of serum therapy, exclusive of diphtheria antitoxin, seems to have but a limited application to the treatment of inflammatory infections of the pharynx. This is due to various reasons, principally the difficulty of isolating, for the proper vaccine, the prominent causative bacillus, and also the natural tendency to localization and auto-resolution of the ordinary infections —so that the relation between remedy and cure could not be well established.

The use of calcium lactate, in the prevention of immediate and remote operative hemorrhages in the oro-and naso-pharynx, has received considerable recent attention with beneficial results.

Without doubt the faucial tonsils in their various relations have received more recent active impetus than any other topic. This attention has been directed toward their anatomy, structure, function, relation to neighboring healthy and diseased lymphatics, as protective organs, portals of entry to contiguous and remote infections, their relation to tuberculosis, general and local, rheumatism, scarlet fever, grippe and other infections—finally, to the necessity and mode of their removal. It would be impossible for me to discuss these various features in detail. Most of them will be taken up by Doctor Frissell, who is to follow me, and I will content myself by dwelling on the question of tonsillar removal, a topic which I approach with a great deal of hesitancy, as it has been made the subject of so many recent discussions.

I am sure, from the above-mentioned relations, that the profession is becoming convinced that diseased tonsils are a menace to health, and when there is a more widespread understanding of this relation to the health of the individual, the objections to their proper removal will be overcome.

It is not necessarily the extent of the hypertrophy, which should determine removal, though that is very important from an obstructive point of view, but whether or no they are *septic* or carriers of sepsis; submerged and adherent tonsils are often more dangerous than a greater hypertrophy. The lack of time prevents going into detail as to the proper mode of removal of tonsils, whether it should be one of the various forms of so-called tonsillotomy, or whether by enucleation or dissection, which receives the name of *tonsillectomy*. A great deal depends on the necessities of the individual case, the experience of the operator, the conveniences for operation, and the thoroughness with which either mode can be accomplished; a poorly-performed tonsillectomy is just as bad as as a poor tonsillotomy, and it is often a question in my mind wheth-

er a properly performed tontillotomy is not as beneficial in final result as the average so-called tonsillectomy. There is no gainsaying the fact that a diseased tonsil should be removed, and the consensus of present opinion is in favor of complete removal.

Undoubtedly we are in the midst of a revolution as far as these two operations are concerned, and if tonsillectomy, in all its phases, is the proper operation for all cases, why has it lain dormant for so many years while tonsillotomy was the sole operation. There must be a reason. Whether sufficient time has elapsed to show untoward remote results from completely emptying the tonsillar cavity, is, perhaps, a question to be considered. Whether there is not more danger from hemorrhage, traumatism, immediate reaction, and subsequent wound-infection from the various modes of complete tonsillectomy, is also an open contention. I think these points must be fully established before absolute surrender should be given to the newer operation.

Another consideration in the performance of tonsillectomy is the great lack of unanimity in its technic by different operators; among the various modes, we have, complete finger enucleation, combination of finger and instrumental enucleation, complete instrumental enucleation, some by sharp and some by blunt separators, spoon-shaped or otherwise, complete dissection by sharp instruments, the cutting by scissors of the *plica tonsillaris* and completing with a wire snare, and more or less modifications of all methods, then also the question of complete, partial or no anesthetic, and the upright or recumbent position. While admitting the personal equation and skill of the individual operator, I think an attempt should be made toward a uniformity of performance. If tonsillectomy is to be performed, I see no reason why it should not be considered as a thorough surgical procedure, done in a thoroughly surgical manner, with proper light, field of vision, proper assistants, attention to hemorrhage during and after operation and careful detail of dissection. These precautions, I am sure, will lessen the dangers of such an important operation.

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RECENT PROGRESS IN KNOWLEDGE AND TREATMENT OF DISEASES OF THE UPPER RESPIRATORY TRACT: LARYNX, TRACHEA AND BRONCHI.*

BY SIDNEY YANKAUER, M. D., NEW YORK.

The laryngoscopic mirror is an instrument which requires no description to this audience. Since the development of the newer methods of examining the larynx, by means of which this organ is brought into direct vision, the use of a reflecting surface for this purpose has been designated as the indirect method. A modification of the indirect method, the pharyngoscope of Hays, has as its merit the fact that it can be used in any position of the patient, and even under narcosis, that a prolonged view of the larynx can be obtained, so that the organ is seen at rest, during quiet respiration; that a child's larynx can be seen without difficulty; that the use of this instrument requires no special training or preparation, so that by its means a physician inexperienced in laryngeal manipulations can obtain a bird's-eye view of the larynx and a general picture of the surrounding parts at the bedside of the patient. In its present form it is not adapted for surgical procedures on the larynx.

The direct method of examining the larynx depends upon the fact that by firmly depressing the tongue in a downward and forward direction, while the head is extended, the axis of the laryngotracheal tube is brought into a straight line with the mouth. The first instrument devised for this purpose was the autoscope, described by Kirstein in 1897. It consists of a strong tongue-depressor, mounted upon a handle containing an electric light, which is reflected along the axis of the tongue depressor. On the proximal end is a hood which rests against the upper teeth. With this instrument, in spite of its somewhat clumsy construction, it is possible to obtain a view of the larynx in about one-half of all patients, and with the aid of appropriate forceps and other instruments to perform all the intralaryngeal operations which are possible with the indirect method, and with more ease and greater speed than by the older methods. Kirstein, however, failed to carry out the most promising development of this new method, for it was left for Gustav Killian, in 1898, to make the observation that if it was

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possible to bring the vocal cords into a straight line with the mouth, it must also be possible to pass longer instruments through the glottis into the trachea and bronchi; and he was also able to demonstrate the life-saving possibilities of this procedure by the successful removal of a foreign body from the bronchus.

Since the original publications of Killian, the instruments have been modified and improved both here and abroad, but as the bronchoscope is merely a direct laryngoscope of sufficient length to reach to the lower respiratory tract, the two may be described together. The modifications consist chiefly in attempts to solve the difficult problem of illumination. Killian used a head lamp in which the light from an electric bulb is reflected by a mirror into the long tubes. The illumination with this lamp is entirely satisfactory when its manipulation is understood, but this requires some practice and skill, as the instruments furnished by the instrument maker cannot be easily adjusted to suit the head of every operator.

To overcome these difficulties, Brüning has attached the lamp to the tube itself in the form of a very elaborate bronchoscopic handle. This apparatus is well suited for examination and demonstration, but for operative purposes it is less advantageous, as the lamp interferes with the manipulation of the instruments, a difficulty which the inventor has attempted to overcome in his latest model by a special arrangement. Brüning has also devised a set of extensible tubes which make the introduction of the bronchoscope easier, but as the extraction and other instruments, when used with his handle must correspond in length to the tubes, it was necessary for him to construct an extensible forceps, which he has succeeded in doing in a very ingenious manner. Ingals, of Chicago, has attempted to solve the illumination problem in an entirely different manner, namely, by introducing through the bronchoscope a small electric light attached to a long wire handle, and Chevalier Jackson has improved upon this idea by introducing the light-carrying wire through a special channel constructed within the wall of the bronchoscopic tube itself.

With these internal methods of illumination it is impossible to see more than one or two centimeters beyond the end of the instrument, just as it is impossible to look from an illuminated room into the outer darkness; on the other hand, with the external method of illumination, the bifurcation of the trachea and the beginning of both bronchi come into view as soon as the instrument has passed the glottis. In addition the light-carrying channel encroaches upon the lumen of the bronchoscope to such an extent as to hide

completely the field of observation whenever an instrument is introduced through the tube. The writer is therefore of the opinion that when the necessary technical skill in the management of the head-lamp has been acquired, the original head illuminating device of Killian is the most satisfactory for bronchoscopic procedures. For direct laryngoscopy, however, where the lumen of the tube is considerably larger, and where the field of observation lies directly at the end of the instrument, the apparatus of Jackson has many desirable conveniences.

General anesthesia is required for the passage of the bronchoscope in children only, but it is desirable even in adults when operative procedures are to be attempted. Direct laryngoscopy can be performed under local anesthesia, but even under good local anesthesia the first attempt is generally accompanied by discomfort and uneasiness on the part of the patient, chiefly on account of the strangeness of the procedure. Upon subsequent attempts, most patients submit even to the passage of the bronchoscope without the slightest hesitation.

In the short time at the disposal of the writer it would be impossible to review in detail the advances which have recently been made in the diagnosis of all the diseases of the larynx, trachea and bronchi, even if he were to limit himself to those advances which are the direct result of the newer methods of examination; he will, therefore, limit himself to a consideration of only a few points which he believes to be of general interest.

A better understanding of the severe acute inflammations of the larynx has resulted from the recognition of the bacterial agencies in their causation. Three kinds of bacteria are found in the throats of apparently normal individuals, the streptococcus, the staphylococcus and the diplococcus. In these severe forms of acute infectious laryngitis which have been called erysipelas of the larynx, perichondritis, phlegmonous laryngitis, one or more of these germs are found to be the causative agent. While the treatment of the most urgent symptom in these cases, the interference with respiration caused by the swelling of the interior of the larynx can be overcome by multiple incisions into the edematous tissue, by the intralaryngeal opening of the abscess cavity, or even by tracheotomy, the cases are sometimes so rapid in their course that the patient succumbs to acute sepsis even before the swelling in the larynx has advanced to a stage in which suffocation threatens; it seems as though little can be done in such cases unless an efficient antistreptococcus serum can be found.

Much has been added to our knowledge of the speaking voice by transferring phonographic records in magnified form to long strips of paper. The study of such records has shown that the speaking voice is subject to a rhythmic cadence not unlike that of musical melody, though perhaps less regular in its variations; by means of the stroboscope, an instrument which depends on a principle somewhat similar to the kinetoscope, it has become possible to study the movements of the vocal cords during the individual vibrations. One practical result of the studies of the speaking voice has been the recognition of the fact that the defect of speech known as stammering is dependent entirely upon a loss of co-ordination between the respiratory and vocal muscles, and is therefore a purely neurotic condition, and that the best form of treatment is one which aims to restore this lost co-ordination by proper respiratory and vocal gymnastics.

The subject of tuberculous laryngitis is too large to be attempted here, but the writer would state that surgical interference by means of intra-laryngeal operations has been generally abandoned in favor of hygienic, dietetic and palliative measures. The use of sunlight has been tried with some satisfaction, the patients sitting in the open air in front of a mirror, and by means of a laryngoscopic mirror which the patient holds in his throat himself, the sunlight is reflected directly into the larynx. The laryngeal infection however, is only a part of the general tuberculous disease, and its improvement corresponds to the improvement in the condition of the lungs and of the general health of the patient. It must be remarked, however, that in those regions where climatic conditions are advantageous to the general health of the patient, it is possible to perform many intra-laryngeal operations with favorable results in a larger percentage of cases than can be obtained in a climate such as that of New York City. Reports of successful operations, especially the amputation of the entire epiglottis where the disease of that organ is the cause of the dysphagia, are made by laryngologists from such regions as Denver, Colorado.

The writer wishes to call attention to the pernicious influence which is exerted upon tuberculous laryngitis by pregnancy. So rapidly does even a mild case progress, and so high is the percentage of mortality, that immediate abortion should be considered as urgently indicated, as soon as pregnancy supervenes.

For the palliative treatment of the dysphagia in this condition the writer has devised a simple and inexpensive instrument by means of which the patient can be taught to make applications of

such drugs as orthoform or cocaine to his larynx, and the temporary relief of the dysphagia which may thus be obtained at repeated intervals during the day results in the ingestion of a larger quantity of food, with a corresponding improvement in the nutrition.

Carcinoma: Great advances have been made in the treatment of carcinoma of the larynx by putting into practice the same principle which guides surgeons in the treatment of carcinoma elsewhere, namely, early operation. It has become a recognized fact that the intra-laryngeal removal of even a small portion of a carcinomatous growth is very apt to be followed by a sudden increase in the rapidity of the growth, and hence it should be a rule that in all cases of intra-laryngeal growths in which the diagnosis is doubtful or in which carcinoma has not been absolutely excluded, the removal of a portion of the growth for pathological examination should not be undertaken unless the patient and the surgeon are prepared to undertake radical procedures without delay. Where the growth is limited to a small part of the laryngeal interior, laryngotomy may be done and the growth with the surrounding margin of the healthy tissue removed; when the growth extends down to the thyroid cartilage, the removal of the entire half of the larynx is indicated; when the growth extends across the median line of the larynx, the entire larynx must be extirpated and this operation can now be performed under local anesthesia; if the glands of the neck are enlarged, or if the growth extends beyond the confines of the larynx, and involves portions of the tongue or pharynx, the life of the patient may be prolonged by very extensive removal of the entire growth en masse, even if it should be necessary to sacrifice the carotid artery, the jugular vein, and the pneumo-gastric nerve on one side; but these operations result in very hideous deformities.

The mortality from laryngectomy results chiefly from inhalation pneumonia, due to the fact that the secretions from the wound flow past the tracheotomy tube into the lower trachea. This accident may be avoided, according to Gluck, by performing the tracheotomy as follows: An incision is made just above the sternum, the trachea is severed completely from the larynx at a higher level, and the end of the trachea brought out through the wound and sutured to the skin. In this way the trachea is entirely shut off from the wound above.

The differential diagnosis of the three chief chronic diseases of the larynx, tuberculosis, carcinoma and syphilis, has been aided by the various blood tests and serum reactions, but these are of such

recent development that statistics as to their value in cases in which the disease is limited to the larynx alone are not yet at hand. It is sincerely to be hoped that the hemolysis tests for carcinoma will prove to be of some value in the early diagnosis of laryngeal cancer.

The application of radium has been employed in laryngeal cancer as well as in other chronic laryngeal diseases, but the results reported by different observers vary considerably. This discrepancy may be due partly to differences in the nature of the disease-process in different cases, but partly at least, to differences in the radium itself. The radiations and emanations which arise from this remarkable substance, which have been designated as a, b, c, d, e, radiations, differ considerably in their nature and in their relative proportions in different specimens of radium, and are influenced by the nature of the container in which the powdered substance is held. The determination of their relative strength is a difficult physical problem, and nothing is known as to their relative therapeutic value in different kinds of cases. The chief and most permanent radiations however, are similar in character to the radiations of the Röntgen tube, and the therapeutic action of radium is similar to that of the X-ray. The more extensive use of radium is limited by its great cost. In England there has recently been established an institute for the study of radium in its chemical and medicinal aspects, and the establishment of a similar institute in this country would be a practical and useful charity to which the attention of our philanthropists should be directed.

The radiations produced by the X-ray tube can be regulated in their strength and controlled in their application at the present time much more readily than those produced by radium, and they have been extensively tried in laryngeal cancer. When applied through the intact larynx, the X-ray is entirely without value; when the larynx has been opened, in inoperable cases, and in recurrences, the use of X-rays limits the growth of the tumor and helps to relieve pain.

Trachea: Since the introduction of the bronchoscope, the diagnosis and treatment of the diseases of the trachea and bronchi have become the subject of direct observation and study.

When the bronchoscope is introduced into the normal trachea, especially if the external form of illumination is used as by means of the Killian and Brüning instruments, the entire length of the trachea, the bifurcation, and the beginning of the bronchi are exposed to view, as soon as the instrument passes the vocal cords. It

can then be seen that the trachea possesses a lumen which is nearly round and uniform, that the mucous membrane is pink in color, and that the cartilages of the trachea stand out as well-defined circular bands.

The spur at the bifurcation is a thin, white antro-posterior ridge which constitutes the most striking feature of the intra-tracheal picture, as well as the most important landmark of this region. It is usually thin and sharp in the middle, gradually broadening both in front and behind as it merges into the corresponding tracheal walls. The lower portion of the trachea, the spur and the bronchi are subject to rhythmical movements dependent, first, upon respiration, and second, upon the cardiac pulsation. Respiratory movement is an antro-posterior movement of all the parts, associated with inspiratory and expiratory dilatation and contraction. The cardiac pulsations are transmitted to these parts, and are most evident in the movements of the spur itself. This movement, which corresponds to cardiac systole, is a combined lateral and rotary movement, the right to left component being more rapid than the return movement; it is directly caused by the systolic dilatation of the ascending aorta. The secondary bronchi do not present these cardiac movements, the only motion to which they are subjected being the dilatation and contraction due to respiration. When the trachea, bronchi, or lungs are diseased, alterations in the form of the lumen, in the respiratory and cardiac movements, in the color and appearance of the mucous membrane, and in the character of the secretion take place.

In acute tracheitis the changes consist in an increased redness of the mucosa and in the presence of a muco-purulent secretion. Only in the severer forms are ecchymotic spots, and ulcerations to be found. In the treatment of this condition intra-tracheal injections may be successfully made in tolerant patients with the laryngoscopic mirror, but with the aid of the bronchoscope these conditions may be treated by topical applications with sufficient success to warrant further investigation along these lines.

Examination of the bronchi during an attack of spasmodic asthma shows that the mucous membrane is congested and that the lumen of the bronchi is narrowed by spasmodic contraction of the muscular coat. The introduction of solution of cocaine and adrenalin by means of the bronchoscopic spray has relieved the individual attack in some cases and has retarded the recurrence of subsequent attacks.

Tuberculous ulcerations of the trachea may also be recognized and treated through the bronchoscope, and in the lower part of the trachea, where they are most common, they give rise to pronounced and severe symptoms and may result in cicatricial contractions producing well-marked stenoses in this region.

The bifurcation of the trachea, and especially the spur itself, is a favorite location for tertiary syphilitic ulcerations and for gummatous growth, occurring very late in the history of the specific disease. Like gummata elsewhere, although they yield readily to general treatment, they are followed by cicatricial contractions of one or both bronchi, or of the trachea itself. It has been shown that these strictures of the trachea as well as the stricture occurring lower down in the bronchi may be successfully treated by dilatation with the bronchoscope, and by the introduction of intubation tubes especially constructed for these deeper parts.

Mediastinal tumors, enlarged glands at the hilus of the lung, and aneurisms of the aorta become evident in the bronchoscopic picture by changes in the lumen of the lower trachea and bronchi, alterations in the form of the spur at the bifurcation, and in the character of its respiratory and cardiac movements. Their differential diagnosis is at present obscure and requires further study. Benign tumors are of uncommon occurrence and are usually situated in the upper part of the trachea.

Fibromata, Lipomata, etc.: Rhinoscleroma, a disease which is endemic in certain parts of Europe, occasionally involves the larynx and trachea secondarily; primary scleroma in the larynx and subglottic regions is very rare indeed. The writer has had occasion to observe two such cases in the service of Dr. Emil Mayer, at Mount Sinai Hospital; one of these cases was cured by application of X-rays through a tracheotomy wound; in the other the lumen of the trachea has been maintained up to the present time by the repeated passage of a bronchoscopic tube.

Stenoses in the upper part of the trachea are not uncommon and result from a variety of causes. The most frequent cause of tracheal stenosis is the pressure of the enlarged thyroid gland on that portion of the trachea which passes through this organ. The lumen of the trachea is encroached upon from one or both sides, and is converted into a slit or crescent-shaped passage. In rare instances the enlarged thyroid may cause absorption of the tracheal wall so as to permit the development of the growth within the lumen of the trachea, a condition known as intra-tracheal struma.

Stenosis of the upper part of the trachea also results from pressure necrosis following intubation for diphtheria, and from ulceration of the larynx and perichondritis of the cricoid occurring during typhoid fever. A special form of stenosis results from the prolonged wearing of a tracheotomy tube, and consists of a horizontal ridge of cicatricial tissue across the posterior tracheal wall.

In the milder forms of these stenoses, dilatation by means of Schrötter tubes may cause a sufficient widening of the passage to keep the patient comfortable; in the more pronounced forms, permanent dilatation may be obtained by the introduction of large intubation tubes which must at times be left in place for many weeks. In extreme cases it may be necessary to split open the entire trachea and larynx, suturing the laryngeal mucous membrane to the skin, so as to obtain a permanent opening of the larynx. A T-tube of gradually increasing diameter is inserted into the lumen of the trachea and larynx, and kept there for many weeks by means of bandages, until as the result of pressure the cicatricial tissue has been permanently softened and worn away; the larynx is then closed by a plastic operation. With the aid of the bronchoscope, however, it is possible to relieve some of these patients without so severe a procedure; the writer has under treatment at the present time a girl of seventeen, who has worn a tracheotomy tube since she was three years of age, which was inserted during an attack of diphtheria; the cicatrical contraction of the trachea immediately above the tracheotomy wound was so pronounced that only a small probe could be passed through it. After first dilating the stricture from below by means of gradual increasing sounds it was finally possible to introduce a small and later a large bronchoscope through the stricture and to produce sufficient dilatation to render possible the removal of the tracheotomy tube and the closure of the wound.

The removal of foreign bodies from the trachea and bronchi has been attended with such brilliant results that the subject is one of special interest and importance. The inhalation of a foreign body may take place during the act of swallowing or laughing, or during the sudden inspiration, known as gasping, resulting from a sudden shock. The symptoms produced by such an accident vary much in degree and character acording to the nature of the foreign body. In all cases the inhalation of a foreign body is followed by a severe paroxysm of coughing by which the foreign body may become dislodged and expelled at once. If it is not expelled, the patients usually complain of pain in the chest, in the region corresponding to the location of the foreign body. If the foreign body

is large, so that it is arrested at the bifurcation, there will be severe dyspnea which may become so pronounced as to cause immediate death. If, however, on account of the shape or size of the foreign body there is room for the passage of air between it and the tracheal wall, death will not ensue, but the dyspnea may be so pronounced that the patient is decidedly cyanotic. If the foreign body remains in this situation, the irritation produced by it may cause swelling of the mucous membrane, so that eventually the passage of air will be completely obstructed. If the foreign body is small enough to pass the bifurcation and enter one of the bronchi, the dyspnea is not extreme, even if the foreign body partly or completely fills its lumen. Occasionally it happens that a foreign body which has been lodged in a bronchus or its division for days or weeks may be spontaneously expelled, but this occurs in only a relatively small percentage of the cases. The prolonged presence of a foreign body is rarely tolerated without pronounced reaction on the part of the lungs, but the mouth-piece of a pipe has been found in one of the bronchi, at autopsy, without apparently having given rise to symptoms during life. On the other hand, inflammation of the bronchus and of the surrounding pulmonary tissues, accompanied by cough and expectoration, are the usual results. If the foreign body is hard and firm in structure, and is insoluble, such as a piece of metal, the irritation of the surrounding tissues is less pronounced; but pieces of bones and other organic substances, such as particles of food, etc., undergo decomposition, and hence are more apt to cause infection, especially if they are sharp, and wound the mucous membrane. The most dangerous of all foreign bodies are such substances as peas, beans, and other vegetable kernels or seeds; for these rapidly swell and become disintegrated, the fleshy portion becomes converted into a gelatinous mass which is aspirated into the smaller bronchi, while the insoluble shell may cover the openings of the larger branches and shut them off entirely.

About five years ago, the writer had the privilege of performing the first successful bronchoscopy, in this city, for the removal of a foreign body. The offending substance was an orange-pit which was inhaled by a child ten months old. It was just large enough to enter the opening of the right bronchus and to project across the bifurcation, so as to partly close the other bronchus. The dyspnea was extreme and became progressively worse, and a few hours after the accident, it was so pronounced that the child was nearly suffocated. Owing to the small size of the passages, tracheotomy was performed in this case, the bronchoscope introduced through the

tracheotomy wound and the foreign body removed. The dyspnea disappeared at once and the recovery was uninterrupted. About a year later the writer removed a second foreign body, a peanut kernel, from the right bronchus of a boy of four, the bronchoscope being introduced through the natural passages. Since then he has removed two other foreign bodies by the direct method, i. e., through the natural passages, and in association with Dr. Emil Mayer in a number of other cases both by the direct and indirect methods.

The operation for the removal of a foreign body is not a severe one. In my own cases the operation has not lasted more than five minutes, but even in cases which present difficulties, and in which the bronchoscope must remain in the air passages for a much longer time, no harmful results need be expected. The passage of the bronchoscope does not cause the slightest injury to the larynx and only exceptionally are the patients hoarse after its use. In infants, however, in whom the passages are very small, forcible dilatation is necessary to pass a bronchoscope of sufficient size for the removal of such bodies, and edema of the larynx has been known to follow. In such patients, therefore, the bronchoscope should be introduced through a tracheotomy wound. If the foreign body has been present for a short time only, complete recovery may be expected, but in cases in which the foreign body has remained long enough to cause pulmonary abscess, complete recovery has not always followed even after the removal of the foreign body. In fact, the irritated portion of the lung has in some cases been secondarily infected with tuberculosis. We can therefore state without hesitation that the prompt removal of a foreign body in the trachea or bronchus is indicated as soon as its presence is discovered.

The newer methods of thoracic surgery, by means of which it is now possible to open the chest with impunity, are of interest because of their relation to bronchoscopy. This branch of surgery is as yet in its infancy, but just as in the beginning of abdominal surgery the diagnosis and pathogenesis of intra-abdominal diseases was obscure and difficult, so at present the diagnosis of many intrathoracic conditions can be made, by the methods of examination hitherto in general use, only at a stage when their treatment seems hopeless. The difficult problems of their early diagnosis and treatment has been attacked from above by the laryngologist with his bronchoscope; but they will soon be attacked in a very practical

manner by the surgeon from below. For since the obstacles which have prevented the exposure of the intra-thoracic organs to direct manipulation by the surgeon have been removed by the invention of the negative pressure chamber by Sauerbruch, the possibility of opening the thorax has been an established fact. Much experimental work has been done since then, among which is the invention of the positive pressure chamber by Brauer, the obverse of the Sauerbruch chamber. The principle upon which these inventions depend have been combined by Dr. Willy Meyer of this city in the apparatus devised by him, the differential pressure chamber. The possibility of opening the chest depends upon the maintenance of the respiration, which in turn depends upon two factors. The first of these is the maintenance of the exchange of air in the trachea and bronchi, which is accomplished by nature by means of the respiratory movements, which pump the tidal air in and out of the trachea and bronchi. The second factor is the maintenance of the expansion of the lungs; for it is only in the expanded lung that the alveoli contain enough air to effect the exchange of gases with the blood, and it is only through the expanded lung that the flow of blood from the right to the left side of the heart takes place in a physiological manner. In the methods of opening the chest which have been mentioned, the primary effect of the pneumatic chamber upon the lung is to maintain the expansion of the lung; in the negative pressure apparatus by keeping up a continuous suction on the outside or pleural surface of the lung; in the positive pressure apparatus, by continually forcing air into the interior of the lung through the mouth; and in the differential chamber of Meyer by either of these methods alone, or in alternation, or by a combination of both at the same time. For the exchange of air in the trachea and bronchi, these methods depend upon the fact that in actual operations the chest wall is never entirely opened, and that the respiratory movements of the remaining intact portions of the chest wall suffice to keep up the tidal exchange of air in the trachea and bronchi.

The method of opening the chest which has recently been devised by Dr. Meltzer and Dr. Auer of this city, the practicability of which has been proven in animals by Dr. Carrell, and both in animals and in the human being by Dr. Elsberg, which Meltzer calls the direct insufflation of air into the trachea, stands in strong contrast to the pneumatic chamber methods. In this method, a soft rubber tube is inserted through the larynx into the trachea as far as the bifurcation, and a current of air is blown through the tube, which re-

turns alongside of the tube between it and the tracheal wall. The primary effect upon the lungs of this procedure, consists of a continuous exchange of the air in the trachea and bronchi, so that the tidal movement of this air is no longer needed; in fact, if sufficient air is forced through the tube the necessity for the respiratory movements ceases altogether, and the subject can be kept in a state of complete apnea for a considerable time. The expansion of the lungs in this method is maintained by retarding the return flow of the air through the larynx, which is accomplished by a proper relation between the diameter of the rubber tube and the size of the trachea and larynx.

These methods are mentioned, because they indicate the direction in which progress is to be looked for, and because the writer wishes to call the attention of both the future thoracologist and of the internist to the fact that the immediate need of the present is for a more accurate knowledge, which can only result from a larger experience, in the bronchoscopic diagnosis of intra-thoracic diseases in their earliest stages.

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Indurated Chancre of the Right Nasal Cavity. GEORGES DUPOND, *Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.*, March 5, 1910.

The primary lesion of syphilis of the nostril is so rare that the case reported by Dupond is of interest. The patient was a man of 35 years, chauffeur by occupation, who complained of difficulty of breathing in the right nostril, which had continued for one month, and which had been ascribed to coryza. There was free discharge, tinted with blood. Examination showed a red tumefaction of the right nostril ulcerated in its middle and located in the antero-inferior part of the septum. It was not painful to the touch, but indurated. There were enlarged glands in the sub-maxillary region. A further examination showed mucous patches on the pillars and on the edge of the palate. A diagnosis of indurated chancre of the septum was made, which was confirmed by the serum method. The usual specific treatment resulted in the disappearance of all symptoms. SCHEPPEGRELL.

PEDIATRICS AND OTIATRICS.*

BY E. GRUENING, NEW YORK.

Pediatrics is not a specialty. It is the field of general medicine applied to the infant and child. It summons all specialties to its aid, and therefore also has need of otiatrics. The Otology of today is a science resting securely on anatomical, physiological and pathological bases, and using rational therapeutic methods to meet the clinical conditions. This is a development of the last fifty years, and in this connection we have to mention gratefully the names of Toynbee, v. Troeltsch, Schwartze, Politzer, Zaufal, Macewen, and others. Let us now consider what bearing this new science has on the current practice of pediatrics.

The literature which I studied with this in view gives otology full credit for its present standing. In the "Traité des Maladies de l'Enfance" by Grancher and Comby, the chapter "Les Maladies des Oreilles" has been written by an otologist of note, Moure, of Bordeaux. In the five volumes edited by Hutinel, "Les Maladies des Enfants," there is no special chapter on the otology of children, and ear disease is there treated only as it occurs in connection with other diseases. The same remark applies to the "Handbuch der Kinderheilkunde," by Pfaundler and Schlossman.

Of the American literature I reviewed first the "Collectanea" of Abraham Jacobi, who is abreast of modern thought in his otology as in all other subjects. I have also looked through the last ten volumes of the *Archives of Pediatrics*, at present issued by La Fetra. We find during the ten years some abstracts of otological papers, a few minor articles by otologists, and but two important studies by pediatrists, one by Dr. Huber on "Otitic Serous Meningitis and Its Treatment by Lumbar Puncture;" the other by Dr. Kerley, on "Acute Otitis in Children," fifty-one cases observed in private practice. In forty-four of these the otitis was uncomplicated, four presented a mastoid involvement requiring operation, and in three there was an implication of the jugular bulb.

From the scantiness of articles on the subject written by pediatrists in current literature it would seem that aural exam-

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ination is not as widely practiced and written on as the subject demands. Of American text-books on the diseases of children I looked over: "Diseases of Infancy and Childhood," by Emmet Holt; "Diseases of Infancy and Childhood," by Henry Koplik; "Treatment of the Diseases of Children," by Charles Gilmore Kerley; "Diseases of Infancy and Childhood," by Louis Fischer, and "Diseases of Infants and Children," by Chapin and Pisek. All these authors accept the teaching of modern otology, though Holt makes decided reservations as to the indications for operative procedures. Holt considers the mastoid operation as one fraught with danger, especially for infants, and advises delay until the indications are imperative. He thinks that the operation is performed too frequently, and often with insufficient indications, and that serious intra-cranial complications but rarely occur.

It is unnecessary in this paper to state what are the indications for the mastoid operation. The criticism by Dr. Holt of otiatric surgery and its votaries does not agree with my experience. I have operated on mastoid in public in several large hospitals, general and special, in the presence of practitioners and students, for more than thirty years. I always found that the mastoid could have been opened sooner with advantage to the patient. In no case did the finding justify further postponement. If we recall the indisputable fact that more than one-half of all brain abscesses, and more than one-half of all thrombotic diseases of all the sinuses of the brain are of otitic origin, then we see that there is no exaggeration in the statement that intra-cranial disease is likely to result from a deferred operation.

In a service of thirty years in a general hospital where there were special otiatric and pediatric services, I had in the ear department at all times cases of suppurating ears in children. There were also cases of mastoid disease, cholesteatoma of the temporal bone, otitic serous and purulent meningitis, cerebral and cerebellar abscess, and thrombosis of the sigmoid sinus. These cases were recruited in large measure from the dispensary service which directed the stream of cases to the various departments. I was also called to examine the ears of children in the pediatric service whenever they presented striking ear-symptoms. The number of these cases was small. If we remember that in this, as in other general hospitals, cases of measles, scarlatina, diphtheria, and other diseases of a similar nature are not admitted, we can understand why aural affections, so frequently accompanying the diseases mentioned, but rarely find their way into the pediatric service of a general hospital.

The foregoing facts largely explain the attitude of the pediatrist in private practice, especially in his relation to the otologist. The lack of aural material in his wards will lead him to believe that purulent middle-ear disease with its dire consequences is of rare occurrence. The pathologist, however, tells us that ear disease in babies and children is very frequent, but remains unrecognized when there are no aural manifestations. Panfick, for instance, (*Berl. Klin. Wchnschr.*, 1897), found purulent otitis media, with or without other diseases, in ninety-one cases out of one hundred autopsies performed on material derived from the children's clinic in Breslau, cases in which the diagnosis had been made of broncho-pneumonia and gastro-intestinal catarrh. In the great majority of these cases the existence of the purulent disease of the middle ear was not suspected by the clinician. Those ear diseases which announce their arrival with great, pain, high fever, perforation of the drum, are readily recognized and cared for; while those insidious cases in which the pus remains in the tympanic cavity, and either acts through the blood or infects the respiratory or gastro-intestinal tract, remain unrecognized, and therefore do infinitely more harm.

I might say at this point that it is not an easy matter to examine the ear of a child, and when von Pirquet says that in cases of scarlet fever the drum-head should be examined without a speculum in order not to annoy the child, it is hard to see what knowledge we can derive from such a make-shift examination. The canal leading to the drum is often a very narrow tube, at times obliterated by fine hairs, wax or scales, which have to be pushed carefully aside before the drum-head and its landmarks can be viewed. I consider an otoscopic examination in a child more difficult than an ophthalmoscopic examination, yet we see that men of insufficient otological training will perform paracentesis of the drum without previous accurate interpretation of the tympanic picture. The dab at the drum very often results merely in cutting the canal.

The great service we have yet to render to childhood is to recognize ear disease when there are no striking manifestations. This result will be obtained when the knowledge of the pathologist is applied by the clinician, and the ears of all sick children are frequently and thoroughly examined as a matter of routine.

36 East Fifty-Seventh Street.

A NOTE ON BRAIN ABSCESS FORMATIONS, WITH REPORT OF CASES.*

BY S. MAC CUEN SMITH, M. D., PHILADELPHIA.

It was my privilege recently to exhibit two of the following cases, together with the brain of the third, showing the abscess formations, before the Section on Otology and Laryngology of the College of Physicians of Philadelphia, at which time the two first-mentioned cases had completely recovered. This convalescence was especially noteworthy in the first patient on account of the marked improvement, not only in her general health, but more especially in her mentality.

Case I. M. K., girl, aged seven years. When 18 months old she had measles, complicated by pneumonia. During convalescence she suffered from an otitis media of both ears. The right one recovered in due course, but the left ear continued to discharge uninterruptedly for about five years. The patient was first seen by me in March, 1909. She was poorly nourished, very irritable, had mental hebetude, and suffered from an extremely offensive otorrhea that was constant. From being bright and attentive at school, she had become dull and backward in her studies and could not even do an errand correctly. For instance, if sent to the store for two articles, she would return without anything, having forgotten what to ask for, or else would obtain something wholly different from that for which she was sent.

An examination showed the left ear to be filled with a brownish-yellow, foul-smelling discharge. Its removal revealed an entire abscess of the membrana tympani, malleus and incus. There was marked sagging of the superior and posterior wall of the external auditory canal. The discharge escaped from the attic almost as fast as it could be cleared away with a cotton-carrier. There was some tenderness on deep pressure over the mastoid process, which, together with the bulging of the superior and posterior wall, and the streptococcic infection shown by cultures, induced us to advise a mastoid operation for the cure of the chronic otorrhea. No intracranial lesion was suspected, although the fact that the patient suffered from considerable loss of memory and increasing irritability was deemed a suggestive symptom.

FIRST OPERATION. A radical operation was performed on March 16, 1909. During its progress a large, carious opening was found

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in the tegmen antri, through which a quantity of pus continually oozed. The introduction of a probe showed the location of the abscess formation to be in the temporal lobe, the sinus leading therefrom being sufficiently large to admit of a good-sized drainage tube.

The patient progressed exceedingly well following this operation. Her general condition seemed to improve for a period of about two weeks, when she was suddenly attacked by headache, frequent vomiting and violent convulsions, together with right lateral nystagmus of both eyes, the movements being at the rate of about one hundred a minute, while the right side of the face was drawn up by rapidly succeeding spasmodic twitchings. Her temperature had been normal since her admission to the hospital until this time, when it rose to 101°, but again returned to normal three days later.

Second Operation. A second operation was immediately performed. The old tract was carefully explored, but no additional pus was found there. The Jackson brain forceps were then introduced at a point posterior to the parent abscess formation, and a large quantity of pus was evacuated from this locality. The patient at once improved, but did not seem to fully regain the apparent state of health that followed the first operation. On the contrary, she continued to have occasional attacks of nausea and headache. Her temperature ranged between normal and 101° for five days following this second operation, and then remained stationary at normal. About four weeks after the second operation the frontal headache became continuous. The child was evidently very ill, and additional surgical interference was decided upon.

Third Operation. A third operation was performed April 26, with the purpose in view of locating and evacuating any additional pus formations that might possibly be present. This time the brain cortex was explored anterior to the parent abscess, and fortunately another pus sac was evacuated. No additional discharge was found escaping from either the first or second pus cavities.

April 28, two days after the third operation, the patient was inoculated with a 50,000,000 (dead) staphylococcus aureus autovaccine obtained in pure culture from the pus evacuated from the brain. The inoculation was followed by a one degree rise of temperature within the next twenty-four hours, but there were no other apparent signs of systemic reaction. The immediate effects of the procedure were, 1, marked slowing of the pulse rate; 2, increased output of urine; 3, normal temperature range; 4, cessa-

tion of vomiting and progessive disappearance of the aural discharge. The patient's opsonic index to the germ isolated remained high (1.1).

The child had at this time become extremely emaciated and weighed not more than twenty-five pounds. She gained an additional eighteen pounds before her discharge from the hospital, about three weeks after the last operation. To-day, nearly one year later, she weighs about sixty pounds. Her memory is again retentive and accurate, and she is doing well in school. There has been no recurrence of the pus symptoms. On account of the large opening in the bone, a hernia cerebri resulted, but it was confined within the bounds of the mastoid cavity. Notwithstanding the hernia and the radical mastoid operation performed on this ear, the child can still hear a low voice speaking at some distance.

It will be noted in this case that the patient did not at any time, either before or during her illness, have a sub-normal temperature or sub-normal pulse; furthermore, although she suffered apparently from three distinct abscess formations, the characteristic symptoms incident thereto were practically nil, showing that for a time, at least, they must have been small and encapsulated, and encroached only upon the so-called "silent area" of the temporal lobe; indeed, those pus sacs situated anterior and posterior to what we have seen fit to call the parent abscess formation may have been encapsulated at the time of the first operation. The subsequent symptoms, however, requiring the second and third operations, would seem to indicate some disturbance of the pus formation situated in the satellite abscess cavities. It would appear, also, that these three abscess formations were entirely isolated from each other, or else they would have drained through the outlet provided for the primary or parent abscess. If this had happened, the subsequent symptoms, requiring the second and third operations, could not have occurred.

It is altogether likely that this patient might have recovered without the use of the auto-vaccine, from the fact that we were fortunate enough to locate the pus and evacuate it. However, I wish to take this opportunity of expressing my belief that the employment of the vaccine was of distinct value and may have contributed largely not only to the patient's rapid recovery following the third operation, but probably inhibited further pus formation.

Case II. W. S., male, aged 37 years. When ten or twelve years of age he had an attack of scarlet fever, complicated by a suppurative otitis media of the left ear, which has been recurrent ever since,

a period of about twenty-five years. The longest period between attacks was from two to three years. During this time he maintained a state of good health. On two different occasions, ten years or more ago, his physician, Dr. W. S. Jones, of Camden, removed a polypoid mass from the ear.

Examination showed the left ear to be well filled with a brownish-yellow, foul-smelling discharge, notwithstanding it had been cleansed thoroughly about an hour before. This discharge was escaping through a large perforation in the posterior-superior quadrant of the drum-head, involving almost one-half of this part of the membrane. The tympanic cavity was well filled with a large mass of granulation tissue. Considerable discharge was also escaping through a large, carious opening about the middle of the posterior osseous canal, through which a probe was passed directly into the antrum and revealed much carious bone. He suffered from attacks of vertigo about once in each week, of sufficient severity to cause him to fall unless he promptly received some support. The patient believed that he was entirely deaf in this ear, although he could hear the tuning-fork in close proximity to the concha. Bone conduction was greatly reduced from normal. No tenderness was elicited on pressure over the mastoid. On account of his apparent good health and in consequence of absence of suspicion of intracranial lesions, the usual preliminary examinations of blood and eye-ground were not made.

Operation. The radical mastoid operation was performed at the Jefferson Hospital, March 4, 1909. The cortex was found to be very thick and hard, with the exception of the mastoid tip, which was soft and necrotic. The antrum was reached with difficulty on account of the dense, eburnated bone. As soon as the latter was opened, a quantity of pus gushed out as though it had been under some pressure. When this was cleaned away the pus was seen to escape through a carious opening in the tegmen antri and through the dura. A probe was introduced through this opening into the interior of the skull, the sinus apparently leading into the temporal lobe. A pair of Jackson brain forceps were then introduced and separated, which permitted the escape of additional pus. Proper drainage was provided, and the patient made a slow but uninterrupted recovery.

The chief point of interest in this case is that the patient apparently suffered no inconvenience at any time from this pus formation located within the interior of the skull, unless we may attribute his spells of vertigo to this cause. It would, of couse, have been most

interesting to have had a record of his visual fields and a differential blood count.

The ear at this time, after the lapse of a year, looks perfectly well in every respect, complete dermatization having taken place. He hears the tuning-fork at about six inches, which is a gain of more than five.

Case III. C. M., white, male, aged 23 years. Suppuration of the right ear occurred when one year old, the discharge continuing for two years. From that time he was free from any aural trouble for twenty years, or until the present condition developed. This attack began three weeks prior to the first consultation, with severe pain in the right ear, followed in twenty-four hours by a discharge, which continued for three days, and then suddenly stopped, the patient being immediately seized with severe pain in the back part of the head. This pain persisted for two weeks, when he consulted his attending physician, who immediately referred him to the Jefferson College Hospital.

The patient claimed he was unable to hear, but tests showed that he retained some sound perception through aerial conduction, as well as very good bone conduction. The canal of the right ear was filled with a creamy, foul-smelling pus, and was somewhat swollen. There was bulging of the superior part of the membrana tympani and the posterior wall of the canal, together with great tenderness on pressure over the process. Temperature was subnormal, 97.1°. The spontaneous opening in the drum-head was enlarged and the tympanic cavity aspirated, the patient being admitted to the ward for further examination and observation.

Prof. Howard F. Hansell examined the eyes and found them normal in every respect, except that the retinal veins were overfilled and tortuous, showing some interference with the venous circulation back of the eyeball. This congestion was more marked on the right side than on the left. The ocular examination, however, gave no indication of the site of the supposed cerebral lesion. Furthermore, the neurological report of Prof. F. X. Dercum revealed nothing of importance in the way of localizing symptoms.

Prof. John H. Gibbon examined the case from a general surgical standpoint and reported that, in his opinion, the patient had an edema of the meninges and was suffering from intracranial pressure, but could find no evidence of a localized abscess. The patient died soon after admittance to the hospital. The post-mortem examination revealed an abscess in the right temporal lobe, extending in the long axis. This was filled with very thick, yellowish-gray

pus. Somewhat anterior to the center of the lobe was a second small abscess directly internal to and on a level with the large one.

Here again it will be seen by actual post-mortem findings that the satellite abscess formation had positively no connection with the parent abscess, there being a considerable space of healthy brain separating the two. In the experience of Heinrich Neumann, these abscess formations are usually connected by a sinus one with the other. Nevertheless, in the post-mortem examinations that have come under my notice, I have never found them connected with each other in this manner, but have noted that the foci were always isolated. The two cases reported in this paper would seem to still further confirm this view.

From the fact that brain abscess formations almost invariably complicate the chronic form of aural suppuration, we, as aurists, should be insistent in our endeavor to impress upon the profession the necessity for due recognition of this fact. Intracranial suppuration becomes impressively important when we realize that abscess of the brain may develop from the acute form of middle-ear disease without rupture of the tympanic membrane. Then, again, if we wait for focalizing symptoms, or definite diagnostic data of the abscess' existence and location before operating, it is usually too late to institute successful surgical intervention.

Another point to which I wish to direct attention is that a vast majority of all abscess formations involving the interior of the skull are not even suspected before operation, but are revealed at the time of a mastoid exenteration for a chronic otorrhea—and this applies equally to both intra- and extra-dural suppurations. If, therefore, during a mastoid operation, we find the osseous structure, more especially the tegmen antri or tegmen tympani, discolored or otherwise diseased through carious erosion, or if a fistula is found leading into the brain substance, this unquestionably is our best and most natural route for exploration. A counter-opening in such cases is usually not only unnecessary, but unwise, and in my judgment may cause additional grave complications. All of the cases of this character that have come under my observation have made good recoveries, chiefly, I believe, because of the good natural drainage that this route provides.

When the abscess is deeply situated, the infection being transmitted through the blood vessels or lymphatics, and no evidences of communication are found during the mastoid operation, a prompt external operation is not only justified but demanded.

1429 Spruce Street.

A SAFE INTRANASAL METHOD OF OPENING THE FRONTAL SINUS.*

BY JOHN A. THOMPSON, M. D., CINCINNATI, O.

In a certain proportion of suppurative inflammations in the frontal sinus the local conditions are such that a cure can be obtained by drainage. In advanced cases where the walls of the frontal sinus are necrotic or where polypi have grown upward from the anterior ethmoid cells into the frontal, nothing but an external operation can be considered. It is the only means by which we can gain free access to the cavity and remove either the dead bone or the neoplasms. These are though a minority of the cases, and if a safe intranasal method of securing drainage could be found, many cases would escape the dangers of the external operation. The anesthetic required for the operation above the eyebrow adds an element of risk. The confinement in the hospital and the scarring from the operation are objectionable also in mild cases.

The best of the methods now known for opening the frontal sinus from within the nose are those of Ingals and Goode. Most ingenious of all is that of E. Fletcher Ingals of Chicago, where a curved guide is passed through the naso-frontal duct into the sinus and then a drill driven by an electric motor is guided up into the sinus by sliding over the probe. This method is effective and has resulted in a curve in many cases. It does not disable the patient and does not require confinement to the house over twenty-four or forty-eight hours.

To me there are two objections to the Ingals method. The most important is that it destroys all the mucous membrane about the naso-frontal duct. To prevent the occlusion of the opening made by the drill, it is necessary for the patient to wear a gold drainage tube for at least four months. The presence of the tube gives rise to more or less discomfort and a slight, offensive discharge, while it is in position. There is some danger, too, in the Ingals operation of penetrating the cranial cavity because the burr cuts behind, as well as in front of the probe in the naso-frontal duct. To obviate this danger Goode of Chicago has devised a method where, by passing a protector into the sinus through the natural opening, he cuts away

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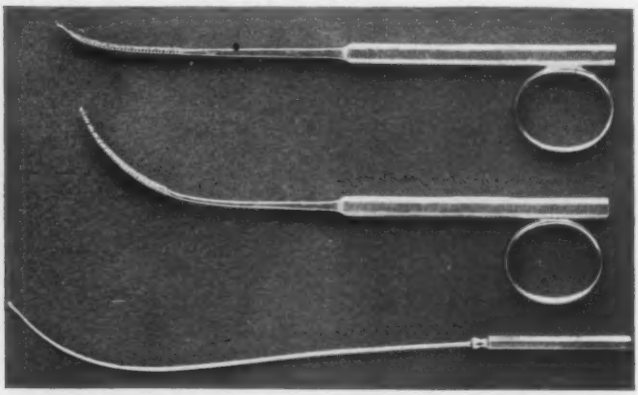
the bone in front of it with chisel and rasp, so as to enter the frontal through the nose. Goode's method is safe, but it requires the destruction of more or less healthy bone. It must be done under a general anesthetic and requires a period of time in a hospital.

It has occurred to me that the objections to these two operations could be overcome and a perfectly safe one made by combining the best features of the two methods into a simpler operation. The method devised is to remove the anterior end of the middle turbinate and then pass a probe into the frontal sinus after injecting cocaine to secure anesthesia as is done by Ingals. Instead of chiseling away the bone in front of the probe a pointed rasp similar to the one devised by Goode, but with a groove in the back, so that it fits neatly and snugly over the probe, is guided up along the naso-



frontal duct as far as it can be pushed by a reasonable pressure and then withdrawn, cutting away the bone downward and forward. By a repetition of this movement, inserting the rasp higher into the duct each time as the resistance is lessened by cutting away the bone, it is possible to work through into the frontal within a very few minutes and with practically no pain to the patient. The bone is softened by the suppurative inflammation until its removal is very easily accomplished. As soon as the frontal is opened, different sized rasps, curettes or forceps can be used to cut away all of the diseased bone in the anterior ethmoid cells without destroying the mucous membrane on the posterior wall of the naso-frontal duct. With a portion of the mucous membrane left in its natural position and with its nutrition unimpaired no drainage tube is necessary

because the bare bone will be covered by membrane extending from the edges of that left in position. The healing of the wound with a free opening into the frontal sinus occurs quickly, and with the relief of pressure there is immediate relief of the severe headaches attendant on suppuration in the frontal.

An illustrative case showing the ease with which the operation can be performed was that of Chas. H., aged 43, Rural Mail Carrier. This patient had had recurrent polypi growing from the ethmoid for 18 years. He had refused to have any radical operative work done for the cure of the ethmoid suppuration and the prevention of the future growth of the polypi. Recently the inflammation extended to the frontal sinus producing suppuration in that cavity. The intense headache from the frontal suppuration caused him to return, asking for relief, but he was still unwilling to have any radical operative work done. Saturday, December 18, 1909, I opened the frontal sinus by the method described. The work was easily and rapidly done under cocain anesthesia and the patient complained of no pain until I had removed all of the diseased bone and the rasp began to grate on the healthy bone. There was practically no reaction following the operation and the patient returned to his home the second day, saying that while the head felt sore, he was relieved of the intense headache from which he had previously suffered. When examined two months after the operation there was a free opening into the frontal. The bone was covered with membrane and all subjective symptoms had been relieved.

The straighter of the two rasps shown is very useful in operations on the maxillary antrum. The nasal wall of the antrum is penetrated well back under the inferior turbinate by a trocar. The point of the rasp is introduced through this opening, and the nasal wall cut away until the junction of the nasal and lateral walls is reached. This makes a free opening into the antrum near the floor for irrigation and drainage without injuring the turbinate. Only local anesthesia is required.

628 Elm Street.

THE EXANTHEMATA: THEIR CAUSAL RELATION TO DISEASES OF THE EAR.*

BY JAMES J. PATTEE, M. D., PUEBLO, COL.

OCCURRENCE: Long before oto-laryngology was developed as a special branch in the practice of medicine, tissue and functional changes in the ear, nose and throat in patients suffering from the exanthemata, were recognized as frequent sequels of these affections. The progress of research has not only strengthened this relationship, but has also established many facts strongly supporting the proposition. Prominent among the findings of this investigation is, for instance, the almost constant presence of the streptococcus in the parent affection, its complications and sequels.

For the consideration of this question, it is necessary at the start to consider the occurrence and the distribution of diseases of the ear, nose and throat in the exanthemata.

Holt[1] states that "the only constant lesions of measles are those of the skin and mucous membrane, chiefly of the respiratory tract." There is catarrhal inflammation of the nose, pharynx, larynx, and large bronchi. In severe cases there may be membranous pharyngitis and laryngitis. A physician once told me that his preceptor would often remark, when talking of measles, that he could diagnose a case of measles while tying his horse to the hitching post, provided he could hear the patient cough. While I do not believe much in any such long distance diagnosis, nevertheless few laryngeal affections produce more distressing conditions and distinctive dry, hard cough.

In Scarlet Fever, all agree that the angina is perhaps the most frequent and important condition. Kyle[2] regards "the diseased throat the most regular in its appearance of all symptoms of scarlet fever." In both affections we have acute rhinitis.

Having briefly referred to inflammatory conditions of the nose and throat in the exanthemata, let us consider the presence of ear disease in the exanthemata.

Downe gives the following statistics of 501 cases of tympanic involvement: There originated during measles 131 cases, or

*Read before the Western Section meeting of the American Laryngological, Rhinological and Otological Society, Colorado Springs, Colo., March 5, 1910.

26.1 per cent; there originated during scarlet fever, 63 cases, or 12 per cent. These two diseases together giving origin to 38 per cent, or more than one-third of the cases, which were unselected. A study of the best authorities reveals the fact that ear complications in scarlet fever are variable and range from ten per cent in moderate epedemics to thirty-three per cent in severe types, whereas the percentage is as high as seventy-five per cent where the throat symptoms are severe. Dr. A. B. Duel found "in a study of 6,000 cases of infectious fevers treated at Willard Parker Hospital, under the most favorable conditions, that acute purulent otitis media developed in twenty per cent of the cases of scarlet fever, ten per cent of the diphtheria cases, and five per cent of the cases of measles." J. M. Dodson[3] states that "about ten per cent of the cases of acquired complete deafness and dumbness can be traced to scarlatina, not including the many cases of partial impairment of hearing." Holt[4] states: "As a cause of permanent deafness and deaf-mutism, no disease of childhood compares in importance with scarlet fever."

ETIOLOGY.

BACTERIA. A number of the infectious diseases are of bacterial origin. The analogy of these diseases strongly indicates that scarlet fever, measles, etc., have their ultimate origin in a micro-organism, the demonstration of the identity of which will, we trust, in the near future, crown the efforts of our bacteriological colleagues. A great variety of bacteria have been cultivated from the throat, blood and other tissues of exanthematous patients. Not less complex is the effort to isolate the identity of the infectious cause of the different affections of the nose, throat and ear, for here also there is a large group of bacteria.

Although the identity of causal bacterial organism in the diseases under discussion is lacking, there are, nevertheless, certain salient facts and concomitant conditions which constitute a lesson with which all of us should be familiar, and upon which depends, in a large measure, the ultimate welfare of the patient. The streptococcus previously referred to, is perhaps the patient's greatest foe. It is a menace to his larynx and lungs in measles; an enemy to his ears in scarlet fever and his worst foe in small-pox.

Hektoen[5] states: "Since the earliest application of micro-biologic methods to the study of scarlet fever the streptococcus has claimed the lion's share of attention. At present the streptococcus is held by some to be the actual cause of the disease, while others, and, I

think, the majority, look upon it as essentially a second invader. Numerous investigations have indicated that streptococci occur upon the tonsils of scarlet-fever patients in far greater abundance than in health; furthermore, that they gradually disappear as convalescence progresses." He finally concludes, first, "that the predominant feature of the bacteriology of the throat in scarlet fever is the constant presence of large numbers of streptococcus pyogenes;" second, "that the overwhelming majority of complications and of deaths in scarlet fever is due to invasion of the tissue and blood by this microbe." He believes, also, "that the chief significance of the scarlatinal virus would seem to lie in its power to open the door, so to speak, to streptococci." What has been said of the streptococcus in scarlet fever represents fairly well its relation to small-pox, of which it has been said "the disease would be relatively harmless were it not for the streptococcus invasion." The same micro-organism holds a conspicuous place in measles. Inasmuch as this coccus plays so conspicuous a part in the production and continuation of ear infections, and since we have noted, also, its importance in the exanthemata, the relation of these affections to those of the ear, is, after all, a very logical one. An almost, or, perhaps, equally intimate relationship could be shown to exist between other micro-organisms prominent in the exanthemata and very common in ear diseases, but, for obvious reasons, time prevents individual discussion of them here.

The presence in the upper respiratory tract of bacteria, which cause the majority of ear affections, is, per se, comparatively unimportant. If with this state of affairs, however, we join conditions always existing in the exanthemata, the risk to the ears is much increased. In the latter case, we have a throat and nose whose secretions are infected, there is hyperemia and congestion of all the mucous membrane of the throat, pharynx, epipharynx, and even of all the accessory sinuses. Normal ventilation and drainage of these cavities are impaired, hence there will result rarefaction of air in the middle-ear spaces and consequent effusions with maceration of the mucous membrane of the Eustachian tube and middle-ear. The patient's resistance is lowered by the toxins, there is general weakness, and nearly every condition present to favor the extension of the infection to the ear. The remarkable fact is that otitis is not more frequent, when we consider that coryza, in healthy patients, often causes ear diseases. These conditions afford an opportunity for the introduction, nourishment and development of

micro-organisms which bring about alterations in the ear which vary from mere adhesive process to the most complicated suppurative changes.

SEASON: The exanthemata and the exudative, as well as the purulent forms of otitis, seem to prevail at corresponding seasons of the year, so far as season bears any casual relation to the former. Of course, measles has no regard for season.

AGE: The ages during which most exanthemata occur correspond closely with the age when the ear is least in condition to withstand harmful influences. Even the adhesive process of later life, probably, have their foundation laid during the tender period of infancy and childhood. In the child, and especially at puberty, there is a physiological turgescence of the mucous membrane of the nose. This nasal fullness mechanically obstructs breathing, inhibits proper tubal drainage, and disturbs tympanic ventilation, thus perverting the essential functions to a healthy physiological oral state.

ADENOIDS: Many are of the opinion that adenoids increase the patient's susceptibility to the exanthemata. On the other hand, it is a fact that the exanthemata tend to enlarge the adenoids, but whether one agrees with the former or not, the latter fact establishes the fitness of the topic in the subject under consideration. Twenty to thirty per cent of our American children have adenoids. I am placing a conservative estimate upon prominent men's reports when I state that fifty to eighty per cent of permanent deafness and persistent suppuration of the ear occur in cases who have, or formerly had, adenoids. In the young child, the naso-pharynx is very low and relatively small. The Eustachian tube is almost horizontal and is not only relatively, but absolutely, wider at birth, and during infancy than in the adult. The post-nasal opening is small, thus obstructing nasal respiration, in consequence of which there is an imperfect supply of oxygen. Sucking is so embarrassed that nutrition and development are impaired. A child that has an anatomically small naso-pharynx, a small post-nasal opening, a large horizontal Eustachian tube, a state of malnutrition, a lowered resistance, an abundance of infectious micro-organisms flourishing in a copious nasal discharge, is certainly liable to ear disease if attacked with any of the febrile diseases.

Although the prophylaxis of ear disease in the febrile conditions belong naturally to our general practitioners, I wish to urge, in conclusion: 1. More general adoption of thorough removal of

adenoid vegetations; 2. The complete removal of hypertrophied or diseased tonsils; 3. The early evacuation of pus from the tympanic cavity by paracentesis, because the streptococcus is nearly always present in otitis due to febrile diseases.

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2-3 Amherst Block.

The Pathogenesis of Perforating Ulcer of the Nasal Septum.

F. SCHIFFERS, *Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.*, April 23, 1910.

The loss of substance in the antero-inferior part of the nasal septum known as the "perforating ulcer," is familiar to the rhinologist, but its etiology is doubtful. Schiffers discusses the various theories advanced, explaining the presence of this ulceration. The nervous origin has no foundation and the bacterial advanced by Hajek and Weichselbaum is doubtful, nor does he believe that the bacillus of Loeffler is responsible. In examining the ulcerative process, we find that it results from a mortification which, commencing from a point on the mucous membrane extends itself in size and depth so as to form a truncated cone with a superficial base. Most frequently the nasal hemorrhages have their origin in the anterior part of the septum, the seat of this ulceration. The author concludes from this that the theory most in accord with the clinical facts and the anatomic pathology is that the pathogenic cause is an infarct at least in the majority of cases. The simple pricking of a vessel may cause a thrombosis by the mere irritation of the endothelium. The traumatism which may start the ulcerated process by producing a lesion of the vessel need not be severe.

(An ingenious surgical method of closing these perforations has been suggested by Dr. Max Goldstein, and is described in THE LARYNGOSCOPE, Nov., 1906, W. S.-Abs.) SCHEPPEGRELL.

THE CORRECTION OF DEFORMITIES OF THE MAXILLAE AS A PROPHYLACTIC MEASURE.*

BY FREDERICK S. MC KAY, D. D. S., COLORADO SPRINGS.

I welcome an opportunity like this to analyze closer the mutual dependence that exists between the rhinologist and the orthodontist. As I understand my mission here this afternoon, I am to try and briefly draw attention to the effects that certain phases of nasal pathology exert upon the maxillae and mandible and adjacent parts and upon the teeth which are implanted in these bones, particularly from the standpoint of prophylaxis or prevention.

Prophylaxis to-day has opened a new area in the application of medical science in general, and in no less a sense in the various subdivisions into which the parent subject is divided.

Far-seeing students recognize to-day in orthodontia a prophylactic measure of large importance in the maintenance of the oral cavity in its normal health, and more than this in the restoration of badly crippled dentures to a condition of normal masticating ability, the general practitioner of medicine has received an assistance of tremendous value. It argues well for humanity if we can extend this same prophylactic influence toward the restoration of the normal nasal physiology.

From what I can learn of this special literature, which, from the orthodontic standpoint is but a few years old, this sense of dependence was first, or most seriously, recognized by the worker on the lower side of the floor of the nose.

The relationship between the two workers is as yet but imperfectly understood, particularly as to the etiology of the conditions that call for treatment, but it is well enough understood by the orthodontist, so that he realizes that under certain conditions his work, no matter how carefully nor skillfully it be performed, is doomed to absolute failure unless the most skillful rhinologist has done his work understandingly and well.

Perhaps I am not far wrong when I state with the same emphasis that the reverse holds true, and under certain conditions which the rhinologist ought to be able to diagnose just as readily as the orthodontist, his work will fail, or at least the best result in a given

*Read before the Western Section meeting of the American Laryngological, Rhinological and Otological Society, Colorado Springs, Colo., March 5, 1910.

case will not obtain, unless the orthodontist is called to do his part. Indeed, this newly found ally is hailed with a great deal of delight and satisfaction by the rhinologist when the value of his services is perceived in what has been a stubborn and resisting case. Let us examine briefly then just wherein these two subjects touch each other so closely.

At about the sixth year of age, the first permanent molars above and below are erupted into the mouth of the child. This procedure is one of great importance to the child because the manner in which the large, pronounced cusps of these teeth engage or interlock anatomically, the lower with the upper, determines the relationship the two jaws will assume for the rest of life. Nature's plan in this regard is definite and I may say that the same plan has come down from the times before man was man until the present, in spite of mutilations beyond number and a great variety of different environments. Unless some special influence be present to interfere, the first molars will lock normally. This is the critical and dangerous time. This is also, as I understand it, a favorite time for the development or enlargement of adenoid tissue.

A period of mouth breathing at this time, by the perverted and wholly abnormal action of the muscles attached to the mandible is *very apt* to cause the incoming permanent molars to assume an abnormal locking of the cusps, the lower taking a position just one cusp distal or posterior to the normal in its relation to the upper. Indeed, the mouth breathing may persist just long enough for the points of the approaching cusps to start down the wrong side of the incline, in which case each closure of the jaws by the simple action of the inclined plane, long known in mechanics, forces the cusps into full mal-occlusion or locking and the damage is done. How futile then after this has occurred to expect any correction other than a mechanical one, and how unscientific, knowing what is bound to develop later, to allow this condition to remain when it can at this stage be so easily and quickly restored to normal.

My assumption is, of course, that previous to this time the temporary teeth were normally locked or in normal occlusion or placement. It is frequently found that the entire temporary denture is distal to normal (lower in relation to upper always) in which case, of course, the conditions are already established prior to the coming of the first permanent molar and the mode of occurrence is precisely similar to that described for the permanent tooth. The first molars thus being established in mal-locking, of course, the

locking of the rest of the entire series of permanent teeth as they erupt, must be in a similar condition which, I repeat, is the lower teeth one cusp distal to normal in relation to the upper. This then accounts for the deficiency of chin and lack of development of the lower part of the face so typical of mouth breathers. Furthermore, the perverted cusp action in occlusion has a tendency to hold the mandible back or at least to prevent its proper development forward, which, coupled with the abnormal muscular action with the mandible drooped during mouth breathing gives us the well recognized picture of the small mandible in these cases. (Angle).

Too often the rhinologist has failed in his writings to call attention to this dental mal-occlusion and deformity of the mandible and has confined his description to the upper jaw or maxilla when a large share of the deformity there is a direct result of the distal placement of the mandible as I shall show. The usual description of the mouth breather's upper jaw is in the main, correct; so it is not necessary to repeat it here. Let us rather proceed at once to analyze the cause for the deformities.

In the normal breather, when at rest, the tongue is sucked up into close contact with the roof of the mouth and with the inside surfaces of the upper teeth. The force exerted by the presence of this mass of tongue muscle exactly balances the force of the muscles attached to the outer surfaces of the maxillae and equilibrium results. With the mouth open for breathing, this equilibrium is disturbed by the tongue resting in the floor of the mouth, the action of the outside muscles being unbalanced. In this manner we can partly explain the narrowing of the upper arch of teeth. Among my models I have a case showing the progressive narrowing of the upper arch through a period of years undoubtedly from this cause. Bearing in mind again the distal position of the entire lower series of teeth one can readily picture the space that this creates between the lower and upper front teeth into which the lower lip naturally rolls, and the muscular contractions of the lip, repeated almost constantly during active waking hours forces the upper incisors into positions of marked protrusion which is unresisted by the short upper lip which is such a constant peculiarity of the mouth-breather. There is almost an entire lack of normal function of the upper lip.

There is, I am sure, the persistent misapprehension that this condition is a bodily protrusion of the upper jaw. This is in no wise correct. It is rather a retrusion of the lower jaw and protrusion of

the upper incisor teeth only, through the abnormal function of the lower lip as pointed out. Very frequently a case may have reached its full development before either the rhinologist or the orthodontist sees it.

Permit me now to outline my manner of procedure in such a case. The history is obtained which invariably, unless the patient's memory be bad, gives an account of a protracted period of nasal obstruction. It is necessary then to explain what is wrong in the relations of the teeth, how it was brought about, and what is of greatest importance to us now that the case be first placed in the rhinologist's hands and the nasal passages be restored to health; otherwise, I as a practitioner am helpless and anything I can do on the case will but be a failure because the original cause is still operative. Let me also ask how futile it is for the rhinologist to expect to make a normal breather of a child who, after an operation cannot close the lips without noticeable muscular effort over protruding upper incisors and whose mandible is held distally by the mechanical mal-locking of the powerful cusps and inclined planes of the teeth. Also, through long years of mouth-breathing, the entire muscular mechanism attached to the mandible and maxillae have been functioning abnormally and entirely out of harmony.

From the prophylactic standpoint it is extremely important that these conditions be recognized in their incipiency bearing in mind how serious may be the condition after years of progression and how difficult to accomplish anything like the splendid results that may be gained in childhood, either in restoring the nose to full function, the teeth to their full normal masticating function, or the face to its proper harmony according to the type or pattern of the individual.

If I may be pardoned the suggestion, the nose should be freed from all obstructions or growths, the membranes of it and adjacent sinuses be restored to health, a psychic effect gained over the child to induce the effort to normal breathing, the upper dental arch gently widened to bring the teeth into proper positions, and also thereby enlarging the nasal chambers, thus rendering the rhinologist a direct benefit of great value, the protruding upper incisors be retracted into proper apposition with the lowers, thus shutting out the lower lip from the area of its pernicious activity, and at the same time gently shifting the lower teeth forward into proper intercusping with the uppers and then maintaining these new relations by proper retaining devices until harmony in muscular action, breathing and dental occlusion be established.

I beg leave to occupy a few minutes further in pointing out a further field of co-operation between these two subjects. We have been considering the pathology of the nasal cavity particularly in the way of obstructions therein.

We have seen that an obstructed nasal space brings about changes in the conformation of the maxillae and mandible that practically always take the same form. It is not generally known among rhinologists, I am positive, that repeated attacks of tonsillitis at this same critical and dangerous period of which I have spoken, namely the time of eruption of the first permanent molars, is very apt to bring about a condition of dental mal-occlusion fully as serious as that caused by mouth-breathing and from the standpoint of facial disfigurement, in my estimation, more inharmonious and unpleasant. I refer to the condition of *protrusion* of the mandible sometimes spoken of as "jimber jaw" or the "bull-dog type." That these unfortunate individuals owe their condition to tonsillitis in childhood is not, as I have said, generally known to the medical profession. Let me try at this point to show how this condition is produced.

Given a child at the time of which I have spoken and given also an attack of tonsillitis, to ease the pain of swallowing or to provide more room for these enlarged sore masses, the lower jaw is protruded and the result is what?—the mal-locking again of these strong, pronounced cusps into abnormal relations precisely as before described, except that the reverse positions are taken, namely the lower cusps engaging one cusp *mesial* or anterior to the normal positions with the uppers. Here again we have a condition absolutely mechanical brought about in the most unsuspected manner which lays the foundation for what will later be a serious handicap to the individual, both from the standpoint of ability to masticate, as I can show by a model I have with me, and as to appearance. The lower jaw is mechanically locked forward of its normal position and further progression is almost an assured certainty until at adult life the harmonious lines of the face are ruined. I need not describe the picture.

This is a condition that should be of vital interest to the rhinologist, as it is to the orthodontist, as it is in their power if they are working together to step in at this time and put a stop to these disturbing influences and by easy and simple methods to restore again the parts to their normal relations, sparing the individual humiliation and trouble later in life. I may say that I have never seen a case of this type that did not give a history of tonsillitis.

To be sure every tonsillar case does not produce this effect, but the thing to bear in mind is that any case *may*, if conditions are just right at the right time and it is certainly the rhinologist's duty to oversee affairs which may result so seriously. It is needless to outline the treatment, but it can be considered prophylactic or preventive in the fullest sense of that term.

Let me urge then that we try earnestly to perfect our understanding of each other's standpoint in our respective fields and realize the greater good to humanity by intelligent co-operation and exchange of viewpoints.

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Treatment of Acute Otitic Meningitis. *Am. Jour. Med. Sci.*, February, 1910.

Dench observes that the surgeon should always remove the primary focus of infection, either by the complete mastoid operation or the complete radical operation, acording as the disease is dependent upon an acute or chronic middle ear suppuration. At this time, any extradural collection of pus should be thoroughly evacuated. Any fistulous openings in the outer wall of the labyrinth should be enlarged and the labyrinth drained by opening the semicircular canal, vestibule and cochlea. With symptoms of moderate intracranial pressure, lumbar puncture should be performed to relieve this pressure. With symptoms of severe intracranial pressure, or in cases of moderate intracranial pressure, when lumbar puncture is negative, a decompression operation should be done, either over the temporosphenoidal lobe or over the cerebellum, or in cases of moderate intracranial pressure, when lumbar puncture is negative, a decompression operation should be done, either over the temporosphenoidal lobe or over the cerebellum, or in both situations. If the symptoms are extremely urgent, the lateral ventricle may be opened at the time of the decompression operation. Preferably, however, the opening of the ventricles should be delayed for from twelve to twenty-four hours, in the hope that incision of the dura may relieve the tension temporarily, and that the effused fluid may be absorbed.

REPORT OF A CASE OF CHRONIC SUPPURATION OF THE ANTRUM OF HIGHMORE. PUNCTURE FOLLOWED BY SEPTIC PEMPHIGUS AND DEATH.*

BY WM. LEDLIE CULBERT, M. D., NEW YORK.

Mrs. S. A. M., aged 57, a native of the United States, married, was referred to me by Dr. J. Huddleston on December 9, 1908. Her general condition was good, but she had complained for some time back of languor and a lack of ambition. During the previous winter she had suffered from a number of attacks, thought to be Grippe, which were attended with fever and pains in the head, back and extremities, with a "stuffed-up" feeling in the nose and difficulty in breathing through the nostrils. Since the acute attack, there has been a steady discharge of pus, particularly from the right nostril, with, at times a dull, heavy pain over the right eye and cheek. During the summer she had noticed an unaccountable bad odor when leaning over to pick flowers. This odor was noticed on several occasions, always when leaning forward.

Examination of the nose showed a thin stream of pus running down over the right inferior turbinate. The latter was swollen and red. The left side showed no gross deviation from the normal. There was some secretion visible on the posterior pharyngeal wall. The mucous membrane was congested and inflamed. Transillumination was negative on the left side, but the right frontal sinus and maxillary antrum gave deep shadows. On shrinking up the tissues of the right nostril with cocaine and adrenalin, pus seemed to issue from both frontal and maxillary openings. Examination of this pus showed a mixed infection of streptococci and the influenza bacillus.

Puncture and washing out of the antrum was advised at this time, but milder palliative measures were requested by both patient and her physician. At this time I was trying Dr. North's suspension of lactic-acid bacilli on various nasal suppurations, and some of this accordingly was used locally. Some temporary improvement was felt by the patient. The odor was stopped and the amount of discharge apparently diminished.

On December 21 however (12 days after her first visit) her condition was rather more uncomfortable, and this was attributed

*Read before the Southern Section of the American Laryngological, Rhinological and Otological Society, Washington, D. C., February 12, 1910.

by the patient to the lactic-acid bacilli. This is about the only instance in my experience, in which complaint has been made after the use of this preparation. An attempt was now made to wash out the diseased siuses through the natural openings, and the patient was shown how to use a saline nasal douche. This gave considerable relief, and on January 4, there being no pain and little discharge, the patient decided to go South. I had favorable reports from her on several occasions during the winter. The douche kept the nose free and clean.

On May 11, the patient returned. Transillumination showed the same condition as before. The antrum was now punctured under cocaine and washed out with a solution of bicarbonate of soda and salt, through a good-sized cannula. A quantity of exceedingly foul-smelling pus came away. Some bleeding attended this procedure, which the patient bore well. A severe chill and a rise of temperature followed on her return home. She was seen at her home on the following day, and the antrum was again irrigated with the same solution, to which a little tincture of iodine and carbolic acid was added. On this occasion the pus evacuated was less in amount and had no odor. No chill followed. Two days later (May 14), irrigation was repeated with a smaller cannula and still less pus appeared. No bleeding. A number of colorless blebs now appeared on the lips, which were swollen. These subsided in three of four days and no significance was attached to the phenomenon. On May 21, the antrum was washed out for the last time, the solution returning perfectly clear, no depression or reaction followed, and there was no return of the blebs. The patient felt decidedly better.

One week subsequently an eruption appeared. The medical history of the case, kindly furnished by Dr. Huddleston, I give in condensed form from his notes.

"Mrs. S. A. M. had an attack of probable influenza in January, 1908, lasting about two weeks. In December of the same year she was found to have infection of the right frontal sinus and right antrum. On May 11, 1909, the antrum was opened by a trocar. On May 26, 1909, the patient reported that, though feeling well the day before, she had awakened with secretion in the eyes, chapped lips, and a dry throat. She showed then a moderate injection of the conjunctivæ and a reddened throat. On the 27, an itching, papular, red eruption appeared on the face, chest, abdomen and arms, and the mouth showed patches of desquamation of the mucous membrane over the palate. The conjunctivæ were more

injected, were discharging muco-pus, and there was a question of iritis. In the afternoon the eruption became slightly vesicular. On the following day, May 28, two diagnosticians of the Health Department, examined the patient, the vesicles were considered typical of chickenpox, but the constitutional condition and the oral desquamation were too serious for this disease. Dr. W. E. Lambert was called in consultation on account of the eyes, and made a bacterial investigation, finding only a few staphylococci. He considered the trouble in the eyes probably an extension from the antrum.

"Superficial ulcers appeared on the mucous membrane of the mouth, and at the mouth of the urethra and on the mucous membrane of the anus. The vesicular eruption on the skin extended to cover the entire body and was apparent on the palms and soles. The vesicles varied in size from a pea to confluent areas covering several square inches. These broke, discharged and left extremely foul-smelling superficial ulcers. The patient became unrecognizable. On June 11, petechiæ appeared and the existing ulcers took on a hemorrhagic appearance.

"From the earliest days of the illness there was a constant abundant discharge from the mouth of a bloody muco-pus, ropy in consistency, tenacious, and removed with the greatest difficulty. There was later a discharge of similar character, but less in amount, from the vagina and anus. The illness was characterized throughout by fever and constitutional depression. After the first few days the diagnosis was supposed to be septicemia of some form, but the name Septic Pemphigus was not given until the visit of Dr. G. T. Jackson, on June 9.

"The temperature ran an irregular course. The pulse varied from 120 to 100 in the early fever, and later rose to 130. The respiration varied from 20 to 28 early, and at the end was 34. The urine after June 5 was that of an acute nephritis. Vomiting, which began with attempts to clear the throat, became so frequent, that no food could be retained after May 30, and rectal feeding was substituted until rectal intolerance developed on the day before death. Mentally, the patient was clear and courageous for about four days, and then sank into a delirium which alternated with a stuporous condition until death. There was extensive bronchitis but no pneumonia. Emaciation was rapid and the final picture was memorable for the foulness of the disfigurement."

Quite a number of cases of septic pemphigus appear in literature. In the *Jour. of Cutaneous Diseases* for June, 1904, Dr. Bowen, of

Boston, reports a case and gives a resumé of the recent literature. Bowen's case was that of a butcher who injured his hand while killing cattle, during an epidemic of foot and mouth disease. Pernet, in a valuable contribution in the *Brit. Jour. of Dermatol.* for May and June, 1896, collected eight cases in butchers, who were infected through wounds, and of whom six died. Whipham (*Lancet,* May 2, 1896), reports a case occurring in a child, following the scratch of a cat, and Allen, in the *Jour. of Cutaneous and Genito-Urinary Disease,* April, 1888, cites a case in a blacksmith.

It appears that nearly all cases of septic pemphigus are referable to animal infection, although Dr. Whitehouse, in conversation, informed me that he had seen a case following pus absorption in a neglected appendicitis. The relation between the disease in man, and foot and mouth disease in animals, seems reasonably clear.

I have not been able to find a counterpart of my own case, in which infection doubtless gained entrance from opening the antrum of Highmore.

16 East Fifty-fourth Street.

Local Anesthesia in Operations on the Maxillary Sinus. RAZEMON, *Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.,* April 16, 1910.

The anesthesia is applied as follows: A 10 per cent solution of cocaine, to which an equal quantity of adrenalin solution has been added, is applied to the gingivo-labial fold by means of saturated tampons; the same solution being applied to the nasal cavity and to the sinuso-nasal wall. Two cubic centimeters of a 1 per cent solution of cocaine is then injected into the gingivo-labial fold in the direction of the canine fossa, the injection being made near and under the periosteum of the canine fossa. When the antrum is opened, the adrenalin-cocaine solution is applied to its interior. Razemon believes that local anesthesia in the operation for the radical cure of maxillary sinusitis is a distinct advance, as it enables the surgeon to perform the operation more rapidly than with chloroform and with less danger.—SCHEPPEGRELL.

RHINO-SCLEROMA: REPORT OF TWO CASES.

BY STANTON A. FRIEDBERG, M. D. CHICAGO.

Rhino-scleroma in the United States, in spite of the large foreign immigration, is still of infrequent occurrence. Dr. Emil Mayer, after a careful search through the literature has found only 16 cases. To these can be added another case recently reported by Dr. A. Braun, of New York, in the February number of THE LARYNGOSCOPE. For a summary of all the cases, except the latter, the reader is referred to Dr. Mayer's article. Including my cases, four have been seen in Chicago.

*Case 1.** History: Female, aged 21, married, born in Austrian Poland. She had been in this country two years. Formerly worked in a paper-box factory. Family history negative. She is quite positive that no other member of her family has had a similar trouble. This is her first serious illness. Her present trouble began in the fall of 1907. It was first characterized by a sensation of dryness in the throat. Accompanying this was a slight hoarseness. About a month later the dryness in the nose began. With this symptom there was a feeling of obstruction in the nose. About two months after the dryness in the throat began the cough developed. This was accompanied by expectoration, choking spells and attacks of dyspnea. These various symptoms grew progressively worse so that in the latter part of February, 1908, she was admitted to the Cook County Hospital. On admission she complained of shortness of breath and soreness in her throat. The latter was referred to the region of the larynx. The dyspnea was both inspiratory and expiratory and was of a marked grade. Cough was frequent with the expectoration of a yellowish-white material. The hoarseness had reached a degree of almost complete aphonia. There was pain on swallowing. Appetite was poor. She slept a great deal but interruptedly because of the cough. She had had night sweats for several weeks but there was no loss in weight. The menses had ceased shortly after she became ill. There was no dizziness or headache. She complained of some slight pain in the legs and a feeling of weakness which came on after exertion. For the past few weeks tinnitus aurium had been present, especially at night.

*Read before the Chicago Medical Society, May, 1908.

Examination: Chest and abdomen negative. Urine normal. Nose: Both vestibules normal. The nasal cavities contained a thin, whitish secretion which later had a tendency to form crusts. On removal of these the mucous membrane was seen to be paler than normal. On the right side the middle turbinal was adherent to the septum both at its anterior and posterior ends. The inferior turbinal had a roughened and slightly irregular nodular appearance and on palpation with a probe the soft tissues yielded but slightly, showing that there was a deficiency of the erectile or cavernous elements. The probe also showed an increased sensitiveness of the nasal tissues. The right side of the septum presented no gross changes. The left inferior turbinal showed at the upper part of its anterior end a grayish white area resembling scar tissue. The turbinal was adherent to the septum for about four-fifths of its entire extent. Far back on the septum and opposite the middle meatus there was an irregular nodule. Naso-pharynx: Pale. No crusts or secretion present. Considerable infiltration on the right side which extended up into the vault; the left side only slightly affected. Both tubal orifices appeared narrower than normal. Pharynx: General anemic appearance. Uvula and palate otherwise normal. The posterior pharyngeal wall showed islands of atrophy, at the sides a number of enlarged vessels. The most characteristic change was seen back of the right posterior pillar where there was a grayish-white elevation about three-eighths of an inch in length and one-fourth of an inch in width. Above this and extending into the naso-pharynx there was a somewhat similar nodule. These were the only evidences of pharyngeal involvement. The base of the tongue was normal.

The epiglottis and larynx partook of the general pallor. About the center of the right false cord a nodule was seen. The left false cord was increased in size by what appeared to be a diffuse infiltration. The true cords were both involved, although the right could be partly delineated and still retained some motion. Below the cords on both sides there was a mass which extended into the trachea. The glottic and subglottic spaces were so encroached upon that it was with difficulty that a No. 1 Schrötter bougie could be passed. The arytenoids, inter-arytenoid space and ary-epiglottic folds were not involved. The color of the sub-glottic growth was gray, with a slightly reddish tinge. It appeared to be smooth. There was no ulceration of any of the affected parts. Both membrana tympani were retracted.

A culture was obtained by the following method: The turbinal was anesthetized with cocaine, cleaned thoroughly with bichloride solution, scraped lightly with a curette until there was an exudation of serum and this was inoculated on tubes of serum-agar. The resulting growth was a pure culture of the Frisch bacillus. The complete bacteriologic findings are given below.

The treatment carried out consisted in passing the Schrötter bougies. This sufficed in rendering the patient more comfortable for about two and a half months. Dyspnea then became so urgent that tracheotomy was necessary. Subsequent to this X-Ray treatments were given for a time.

Present condition, February, 1909. The nares still show the whitish secretion. The inferior turbinals are greatly atrophied, the disease, so far as the nose is concerned, having probably reached the terminal stage of contraction. It has been increasingly difficult the past few months to obtain a pure culture of the bacilli from the nose. The naso-pharynx shows no extension of the process, in fact, the disease seems to have undergone a retrogression in this locality. The pharynx also shows no evidence of involvement, the follicles spoken of above having disappeared. The right vocal cord appears more defined in outline and moves practically throughout its normal extent. The left cord has also a greater range of movement than formerly. The subglottic tissue still has the grayish coloration but has lost its puffy appearance and seems to be firmly contracted down on the tracheal wall. The glottic and subglottic spaces are much larger and offer no obstruction to the entrance of air. On account of the improved laryngeal condition it was decided upon to remove the tracheotomy tube. This was done early in February, up to which time the patient had worn the tube about nine months. She remained under observation for a few weeks when she was discharged from the hospital with instructions to report at times for examination. This she has failed to do, but the writer has heard indirectly that her condition has remained good. Whether the physiological rest obtained by the larynx through the tracheotomy or the influence of the X-Ray treatment was responsible for the lack of extension and apparent retrogression of the disease it is impossible to state.

Sections of tissue removed were made and examined by Dr. E. R. LeCount of Rush Medical College. He reported that the tissue changes were the same as those commonly described as being present in rhinoscleroma. The bacteriological investigation was made by Dr. A. A. Blatherwick, of Rush Medical College, and is as fol-

lows: The bacillus of rhinoscleroma: Colonies A-I and B-I showed exactly the same characteristics and cultural growth in every respect so only A-I will be reported. Hanging Drop: A short non-motile bacillus. Gentian Violet: Short, plump bacillus about the size and shape of Bacillus Coli Communis. Has a distinct halo. Grouped together in smears. Rarely alone or in pairs.

Gram's Stain: Negative. Welch's Capsule Stain: Capsules stained readily. Cultural Characteristics. Slant Agar: Luxuriant; transparent; translucent; moist; viscid; broad, elevated growth. Gelatin Stab: Resembles in shape a nail. The surface growth being round and elevated. No liquefaction. No gas. Milk: No change after 21 days. No acid nor coagulation. Glucose Agar Stab: No gas. Nail-like growth. Bouillion: Whitish, viscid, sediment at end of 24 hours which became heavier at 48 and 72 hours. Potato: Luxuriant, translucent, transparent, broad, elevated, viscid, moist.

	Dextrose		Saccharose		Lactose	
Sugars	Gas	Cloud	Gas	Cloud	Gas	Cloud
24 hours	o	+	o	+	o	—
48 "	o	+	o	+	o	—
7 days	o	++	o	++	o	+
14 "	o	++	o	++	o	++
21 "	o	+++	o	+++	o	++

Slant agar cultures were made from each of the fermentation tubes to prove that the bacilli were still living at the end of 21 days.

At the end of 24 hours smears were made from these slants and stained with Gentian Violet. The smears all showed organisms with the same characteristics as the original smears of the bacillus of rhinoscleroma.

Case 2. J. P., male, aged 23, shop-worker was admitted to the County Hospital, February 16, 1910. He complained of an obstruction in the nares. Before coming to this country he lived in Bilstock, Russo-Poland. He had been in the United States 3½ years, of which 3 had been spent in New York and the balance in Chicago. Family history was negative with the exception that his mother had some external trouble of the nose lasting about 2 years, but which was finally cured. He gave the following history: The obstruction in the nose had existed for 7 months, although one year ago he noticed a small papule on the left ala. This bled easily. Two months subsequently a similar growth appeared on the right side of the septum. He had a slight discharge from the nose which came on 4 months after the eruption. He had no pain in the nose at any time. He noticed a peculiar hardness of the nose for the

last 6 months, and complained also of trouble in the throat which had existed for 3 months. Two months ago noticed pain in the palate; this was constant day and night; it was not increased by swallowing.

Examination: Nose.—Enlarged over the soft parts, especially on the right side. The hardness was of the so-called stony variety. Both vestibules were filled by a firm hyperplastic growth completely preventing nasal breathing. On the left side, this growth seemed to take its origin from the alar surface, the septum and the floor, on the right only from the external wall and floor. The growth itself was firm, rather pale, irregular and nodulated. Palate.—The right side of the hard palate showed an irregular oval area of superficial ulceration, about five-sixths of an inch in length and four-fifths of an inch in width. The margins were defined but there was no area of hyperemia surrounding it. It was very hard to the touch of the probe and bled easily. On the soft palate at the base of the uvula there was an ulceration which encircled the entire base extending up on the palate. A little nodular growth presented within this area. Both posterior pillars were thickened, the right for its upper half, the left for its upper third. The soft palate was hard and unyielding. Its color was paler than normal. The posterior pharyngeal wall was normal. A view of the naso-pharynx was unsatisfactory on account of the thickness and rigidity of the palate and pillars. The vocal cords were slightly congested and the tracheal mucosa appeared thickened.

The diagnosis of Rhino-scleroma was only positively made after cultures and sections were examined. The stony hardness of the nose made one suspect this disease, but the palatal condition was so atypical that syphilis was also to be thought of. Anti-specific treatment had no effect upon the growth or ulceration.

The treatment consisted of the removal of the nasal growths as thoroughly as possible. X-ray treatments were carried out on an average of 3 times weekly for several months. The patient left the hospital the middle of May. Nasal respiration was satisfactory, although the palatal condition, while it had not extended, did not show any great amount of improvement. There was perhaps a slight healing of the ulcerated areas extending from the periphery inward.

I wish to acknowledge my indebtedness to both Dr. LeCount and Dr. Blatherwick for the pathological and bacteriological examinations.

34 Washington Street.

A TRUE PAPILLOMA OF THE NASAL SEPTUM.*

BY RUFUS B. SCARLETT, M. D., PHILADELPHIA.

Papillomata of the nasal chambers are now conceded to be of rare occurrence. This fact was firmly established in 1891, when Wright[1] presented the results of his investigations on the subject in a meritorious paper before the Thirtieth Congress of the American Laryngological Association. His conclusions, however, were somewhat at variance with the views of Hopmann and his followers, who claim that such tumors occur with considerable frequency. The difference of opinion, as pointed out by Wright, seemed to be one of terminology. Briefly speaking, a true papiloma is a tumor showing profuse epithelial proliferation, slender stalks of connective tissue, and the absence of mucous glands. Acording to Douglass,[2] the papilloma described by Hopmann is "the ordinary polyp process of mucous membrane, which has become folded and convoluted and furrowed because of the pressure to which it has been subjected in the limited space in which it grew."

It is no wonder, then, that Hopmann[3] was able to observe 78 cases of papilloma in 430 benign tumors of the nose, while Bosworth,[4] who undoubtedly entertained views similar to those existing at the present time, saw only one case in 290 benign tumors, and Watson Williams but two cases in his entire experience. Wright observed only one case in several hundred nasal tumors and hypertrophies, and Newcomb[5] has been able to collect but 29 cases of true papilloma in the entire literature, and adds one of his own. Since the publication of Newcomb's paper in 1901, the writer has been able to find the reports of only two cases.[6]

The location of these tumors is more or less constant. They are usually found over the cartilaginous portion of the septum close to the vestibule, and are rather variable in size. In a case reported by Arrowsmith,[7] the tumor was situated five-eighths of an inch posterior to the columna, and was about the size of an ordinary shoe-button. Yearsley[8] recorded a case in which the growth was three-quarters of an inch inside the vestibule. In the first case reported by Wright, the tumor was growing from a point above the cartilaginous septum, and was about half the size

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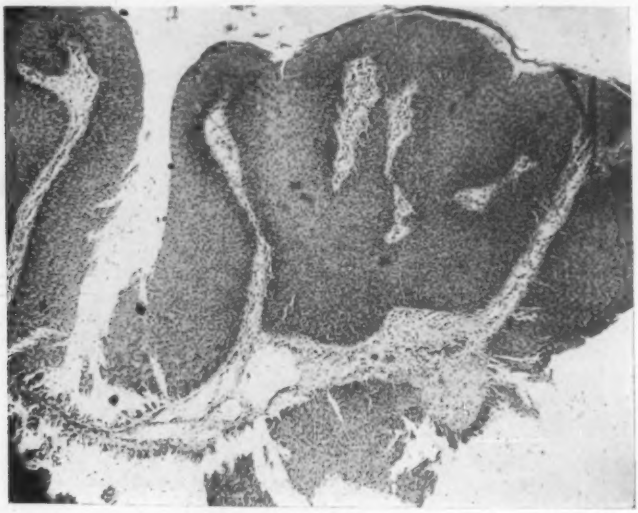
of a split pea. De Santi[9] added a case in which the growth was attached by a pedicle at the upper and anterior part of the septum, close to the junction of the bone and cartilage, which was about the size of an ordinary walnut, and which filled the entire anterior naris. Wright[10] contributed a second case in which a slender pedicle was attached to the upper part of the cartilaginous septum at about 2 cm. from the columna. In this case, also, the naris was entirely occluded. Turner[11] removed a papilloma from the nose by an external incision, the right fossa being so occluded as not to permit even the introduction of a speculum. The growth was found to be attached to the middle of the septum by a rather broad base, and was about the size of a small orange, resembling a typical cauliflower mass. The presence of the growth was sufficient to obliterate the turbinal bodies. In 1899, Douglass was able to report a case in which a warty growth of the mucous membrane was situated on the right side of the septum behind the tubercle, and which partially filled the inferior meatus. McKinney[12] saw a case of a medical student in which the growth was attached to the upper and anterior portion of the cartilaginous septum behind the tubercle, and which was about the size of a coffee bean.

In the cases so far cited, the tumor has had its attachment entirely to the septum, but it may also extend to the surrounding parts. Harris saw a doctor who had a papillary growth springing from the septum, floor of the nose, and the anterior portion of the middle turbinate, the anterior extremity of which was about 2 cm. inside the vestibule. Mackenzie[13] reported a case of diffuse papillomatous degeneration, in which the mucous membrane of both nostrils was studded throughout by numerous sessile growths, varying in size from a pin-head to almost a grain of rice; the majority, however, being intermediate between these two extremes. The upper regions of the nose, i. e., the roof, the outer wall, and the septum showed the more abundant growth, although there were many located on and about the inferior areas of the nose. Wright[14] was able to report a third case, which was similar in the extent of the surface involved to the one observed by Mackenzie. The sessile papillary growths covered the upper and anterior surfaces of the right nasal chamber, extending over the middle turbinate and the adjacent septal surface, going far back in the middle fossa, running forward to the muco-cutaneous junction of the vestibule of the nose and extending down some-

what over the inferior turbinate. They were of various sizes, but mostly smaller than a bean, and more sessile.

Some uncertainty still exists as to the etiology of nasal papillomata. In one of Wright's cases, there seemed to be a close association between the existence of the tumor and a very severe blow upon the nose as the result of a fall upon a bicycle handle; while in another "the spot coincided with a region which was subjected to the attrition of the upper edge of the triangular cartilage, which forms the ridge known as the plica vestibuli, and which in this case rubbed against the septum when the lower



Case I

edge of the triangular cartilage was rolled out by mucular action in the dilatation of the alae nasi during inspiration." (Wright). In the report by the same author[15] of a case of sarcoma in the nose of an ox, attention was called to the ocurrence of an intranasal tumor following the infliction of external violence. In the second case reported by the writer, the patient admitted traumatism to the septum by the finger nail. Even with strong circumstantial evidence at hand, definite and positive proof as to the true etiology is still wanting.

The subjective symptoms produced by papillomata of the nose, as a rule, are not marked, and must necessarily depend to a great extent upon the size of the growth. In Newcomb's case the pa-

tient was not aware of its existence until discovered as the result of a routine examination, while de Santi, Wright, Turner and Harris have reported cases in which obstruction was very decided. Midway between these two extremes are recorded cases in which only slight impediment to nasal respiration existed, and the patient complained of nothing more than a stuffiness in the nose. Epistaxis of a mild degree is not an uncommon symptom and may be the first indication of any abnormal condition within the nasal chambers. Pain is unusual, but has been encountered in several cases. A foul discharge may be present when the obstruction is marked. Turner's cases showed a tendency to lacrimation and interference with the sight of the right eye, but relief was obtained by the removal of the growth.

The gross appearance of these tumors is more or less distinctive, being of a cauliflower type. A positive diagnosis, however, should never be made without the aid of the microscope in order to avoid a faulty differentiation. The chief points of difference can then be detected between the true papilloma and turbinal hypertrophy or a polypoid growth. With proper magnification, cell proliferation will be seen, and a scanty stroma showing poorly-developed blood-vessels.

To what extent papillomatous tumors undergo malignant changes seems to be a question still open for confiicting opinions. That such a condition is possible is still lacking the convincing proof. It is true that cases are sometimes encountered in which the evidence is pretty strong, but then the question arises as to the possibility of the tumor being malignant from the start, though the tissue removed and examined does not show the characteristics of malignancy. Wright states that after repeated examinations he has satisfied himself of the benign nature of the epithelial proliferation, they never change their type to malignancy. Quoting further from the same author, we read: "In view of much sentiment to the contrary, I cannot too emphatically state my belief—founded on considerable experience with the histological diagnosis of these growths—that such metamorphosis must be exceedingly rare. I have never seen any satisfactory evidence of it. Where this belief has been suggested from clinical experience there was malignancy to begin with; the first clinical or microscopic diagnosis was at fault, the first grasp of the forceps, removing tissue for microscopic diagnosis, failed to reach the histological evidence of malignancy."

The majority of these growths show little or no tendency to return once they are thoroughly removed, judging from the results of the cases reported. Ocasionally, however, a patient is seen in which this rule does not hold good, and in whom recurrence is persistent. A pronounced case of this sort was reported by Verneuil,[16] in which after repeated operations, there remained only the palatine arch and the posterior two-thirds of the floor of the orbit. The case then passed beyond observation in practically the same condition as when first seen. Knapp[16] had a

Case II

patient from whose nose large masses were removed at short intervals. In the course of several years the condition had improved somewhat, but the growth had not entirely disappeared. A third case is mentioned in the same monograph as the above two, in which the tumor occurred after operation, and continued to do so for a period of a year, when it entirely disappeared.

The removal of papillomata is usually not a difficult matter, and may be done with the cold-wire snare, the scissors, or the septal knife. The cautery has also been resorted to with apparent success, but the application of this instrument is usually reserved for the base of the tumor after removal.

The report of two cases of papilloma of the nose, the second of which was observed after announcing the title of this paper, is permitted through the courtesy of Dr. Francis R. Packard, whose kindness I wish to acknowledge with grateful appreciation.

Case 1. G. W. R., male, aged 22, was seen by Dr. Packard on December 2, 1907. For several years he had complained of a wheezing noise in his nose and obstruction of his right nostril. He also had alternate obstruction, depending upon which side he lay at night, the uppermost side being clear and the lower nostril blocking up. He did not remember ever having any injury to his nose, and there was no external deformity.

Upon examination there was found a bony and a cartilaginous ridge along the septum in each nostril, that on the left side was larger and evidently produced more obstruction than the one on the right—the left middle turbinate being in contact with the shelf. In the right nostril, springing from the bony shelf, there was a small round growth about the size of a large pea, with a mammillated surface.

On January 25, 1908, the growth was removed with the cold-wire snare. Free bleeding occurred, but ceased when an application of silver nitrate, dram to the ounce, was made to the stump. On February 2, 1908, the shelf projecting from the left side of the septum was removed with the saw. The patient made an uneventful recovery, is now perfectly comfortable, and so far as can be determined, the growth has shown no signs of recurring.

The microscopic examination shows the specimen to be made up of masses of epithelium and delicate stalks of connective tissue. The cells along the basement membrane seem to take the columnar type, but as they near the surface, they appear to become more or less of a squamous nature. In some areas the underlying cells show a tendency to granularity of the protoplasm, but toward the periphery, they are, as a rule, clear. The connective tissue forming the delicate stalks, which give the tumor a papillary appearance, is loosely arranged, and contains poorly formed blood vessels. There is also a moderate amount of round-cell infiltration, which, here and there, penetrates a short distance into the mass of proliferated epithelium.

Case 2. This case occurred in the service of Dr. Packard at the Pennsylvania Hospital, the growth being removed by Dr. E. J. Stein, who handed it to me for examination. M. M., female, age 19, no-

ticed a small tumor growing from the cartilaginous portion of the septum for about 4 months. The presence of the growth caused no discomfort other than a knowledge of its existence and the appreciation of its gradual increase in size.

Examination showed a small warty tumor, situated at the muco-cutaneous junction on the left side of the septum. In May of this year, Dr. Stein removed it with a circular punch, with practically no bleeding.

The microscopic examination shows a predominance of epithelial cells and a delicate stroma. In this case, also, the cells along the basement membrane approach the columnar type, but as the surface is reached, they assume a decided squamous character. Throughout the specimen many of the cells show a marked granularity of their protoplasm. The slender stalks of connective tissue are loosely arranged, and the blood-vessels are poorly developed. Round cell infiltration of the connective tissue is more or less prominent, and small patches can also be seen in the epithelial areas.

The growth has since recurred, but slightly posterior to the original site, and is now about half the size of a small pea.

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4009 Chestnut Street.

THE FIFTIETH DOCTORATE ANNIVERSARY OF DOCTOR J. SOLIS COHEN.

At the thirty-second annual dinner of the American Laryngological Association, held in Washington, D. C., May 4, 1910, a loving-cup was presented to Professor J. Solis-Cohen, by the Fellows of the Association.

The presentation address was made by Dr. D. Bryson Delavan, who, upon being introduced by the President of the Association, Dr. James E. Logan, said:

DR. SOLIS-COHEN: The Fellows of the American Laryngological Association have considered the present opportunity a fitting one in which to express to you their sentiments.

The Fiftieth Anniversary of one's embarkation upon a great enterprise must always be an event of unusual interest, especially when the undertaking has been crowned with conspicuous success. The golden wedding, with its rallying of the children, the grandchildren and the great-grandchildren, its revival of the memories of the past, its testimonials of affection and friendship, has its fitting counterpart in the golden jubilee of your espousal of medicine.

To-night, celebrating this historic occasion, we bring to you our greetings and extend to you warmest expressions of friendship and congratulation.

The children of your creation in medical science and art are indeed a numerous family, representing as they do the widest range of professional effort. In the departments of invention and of literature no laryngologist has contributed more, while the great army of pupils who have been inspired by the loftiness of your character as well as by your energy, your enthusiasm, your deep learning, and your unrivalled skill, have gone forth into the world of science, men of high ethical standards and of advanced professional training. Through them you have lived, and are living over and over again, that life of high endeavor which they have learned of you and which you yourself have so nobly exemplified.

Entering the field of laryngology in this country at its very infancy, you have been a living witness of its unparalleled growth. From an humble and unpopular birth you have watched its development into a thing of dignity, of influence and of power. You have seen the number of its votaries increase until whereas, in your early day there was one, now there are a thousand.

You have seen the clinic which you started, single-handed, expand into an important department in a great institution of learning. More than that, you have seen your pupils and those of your immediate followers, going forth through the length and breadth of the land, carrying your message, building up splendidly equipped infirmaries and establishing new centers of special instruction wherever medicine is taught. From nothing you have witnessed the development of an important department of medical literature. In the management of disease you have seen verified our motto, "E tenebrae lux."

In this marvelous progress you have been the first and the greatest leader. Foremost of the advance-guard, there has never been a time in your long march when you were not the acknowledged chief. To-day, we who now desire to honor you, honor ourselves in thus proclaiming you.

No eulogy to you could be as eloquent as the simple record of your life. The example of personal and professional uprightness which you have set has been a veritable beacon-light, shining out through the clouded ethics of the time, a sure guide to the doubting and a solace to the honest strivers after truth.

That your experience has been wide and your accomplishments have been varied is shown by the relation of some from among the many notable incidents of your career. After having gained a substantial education in Philadelphia, both in the arts and in medicine, you made the most of your opportunities as interne at the Pennsylvania Hospital, and then, during the Civil War, entered the service of your country as Acting Assistant Surgeon. In that capacity you served with credit, both in the United States Army and in her Navy. At the close of the War, you entered upon the practice of medicine in Philadelphia. In 1866, almost the very first in America, you began giving private lectures in laryngology, at the Philadelphia School of Anatomy. In 1870 you were elected Lecturer on Laryngoscopy and Diseases of the Throat and Chest in Jefferson Medical College and, later, you organized a clinical service in its Collegiate Courses, abandoning your private clinic and your private lectures. In 1882 you were elected Honorary Professor of Laryngology in Jefferson Medical College and for many years still supervised in the throat clinics until about 1895, when you practically retired from teaching. In 1883 the Philadelphia Polyclinic and College for Graduates was established and, as one of the founders, you became Professor of diseases of the throat and

chest. In connection with this you established a Laryngological Clinic, which you supervised for several years, retiring as Emeritus Professor.

In the early days of laryngology it remained for three English-speaking authorities to place the departments of laryngology and rhinology upon a firm scientific basis. Of these you were the first. Your classical work, published in 1872, gave a full exposition of the subject to date. It was far more complete and comprehensive than anything which had yet appeared and as a practical guide was, and still is to-day, unrivalled. No book has had a greater influence in disseminating a wide and comprehensive knowledge of laryngology.

The vast number of your original contributions to literature have been marked by the originality, the clearness, the wisdom and the scientific accuracy which distinguish you.

Together with Louis Elsberg, Frederick Irving Knight and George Morewood Lefferts, you were founder and editor of *"The Archives of Laryngology,"* the first and the best special journal of laryngology ever published in the United States.

Your inventions have been many and valuable. You have devised and adapted instruments and methods for the treatment of conditions at the time hardly recognized by others, in some instances ante-dating claims of priority by many years.

As an operator you were twenty years before your contemporaries in the surgical treatment of the nasal sinuses. You excelled in the surgery of the upper air passages in general, both major and minor, in all of its branches. To your credit belongs the first really successful complete laryngectomy performed in America, introducing into this country in the course of it the now well-recognized method by which the severed end of the trachea is caused to emerge from the lower part of the neck.

In the highest sense a specialist, you have shown that your knowledge of medicine in general is wide and profound, and that no one of your time appreciates better the importance of the association of general medicine with special.

Here in the American Laryngological Association, by many years the first association of its kind, your influence has been pre-eminent. The most illustrious of its founders, through an excess of generosity you were nominally its second president, although actually its first, and the two meetings held with you as presiding officer actually marked the beginning of the brilliant record of its history. At those meetings, thanks to the force of your example

and precept, standards were set in ethics, in organization and in scientific excellence which, followed by those who have succeeded you, have placed our Association foremost among its kind. At that time the department of laryngology was unformed. Its many scattered elements although showing strength and the promise of vigorous growth were disjointed, its state chaotic. The situation required the help of one possessing your peculiar power of organization and of reconciliation.

Your success at this time in uniting elements which might have become discordant has placed those who have come after you under an obligation the weight of which they little realize.

Unlike some of your colleagues the light of your enthusiasm for the Association has burned bright and clear from that early day until this. No one has been its more staunch and earnest friend in times past and no one to-day remains more loyal.

This record of long-continued, active, untiring interest is one which we of the association heartily acknowledge, and for which we earnestly testify our appreciation.

In the long course of your practice of medicine, both public and private, you have extended to your patients, whose numbers no man can estimate, unspeakable kindness, sympathy and liberality. It is here more than anywhere else that you have distinguished yourself. Yours has indeed been the career of the true-hearted friend, the good physician. And now, after all these years of service, the memory of your devotion to others must be the brightest gem in your well-earned crown.

Who has done so well in so many different directions? Not one of all your contemporaries. Certainly no one of later date.

We honor you, however, not so much because of what you have done as for what you are. From the beginning to the end of your long, useful and brilliant career self-seeking, arrogance and unworthy ambitions have been to you unknown. Yours has been the modesty of conscious worth. Eminently forgetful of self, you have striven to enlighten, to improve and to help. Your life has been one long-continued story of earnest, enduring, heroic effort to raise your fellow-beings to higher planes of thought and action, to relieve suffering and to better the conditions of mankind. With this end in view you have labored cheerfully, consistently, with all unselfishness and with unremitting zeal for fifty years. The motives of your actions have been as clear as crystal. Those around you have recognized in you the Scientist, the Patriot, the

Humanitarian. They have quickly appreciated you as an unspoiled man of the world, a generous rival and a devoted friend.

Some of them have known of the varied burdens which have accompanied your life. They have seen you pass through deep waters, through trying experiences of professional endeavor and through those inevitable currents and whirlpools of difficulty which must confront the pioneer in all great work. They have realized the purity and the integrity of your conscience. They have noted the undaunted courage which has sustained you, the calm serenity with which you have met every decree of fate. They have recognized in you a broad and philosophical mind and, above all, a spirit of tolerance, of kindliness and of devotion to the interests of those about you and to the world at large which has placed you among the foremost benefactors of our time.

We respect you for the qualities of your mind and character. The qualities of your heart have won from us our deepest affection. You are well named the Nestor of American Laryngology, although I doubt not that if Homer had possessed the knowledge of you, which I am happy to say, belongs to us, he would have pictured Nestor with even greater dignity and force.

While not forgetting all of your other achievements and attributes it is the sense of personal regard for you which dominates us to-night. A great honor has been placed upon me in the privilege which I now have of representing, in the presentation of this testimonial, those who know you the best and who respect you the most. I but poorly represent the sentiments which they would express, but in their names I present it to you, with a heart brimming over with affection. We appreciate you and we want you to know it, and that in no uncertain terms. We love you and wish you to feel it with all possible power. We realize what you have done for us and for the world at large in the past. We desire to add if possible to the contentment and happiness of your present. For the future we pray for you every possible blessing of health, prosperity and peace.

And now, in the name of the American Laryngological Association, I present to you this gift, offered you as its inscription reads. "in recognition of your distinguished services to Laryngology and in commemoration of the Fiftieth Anniversary of your graduation in Medicine."

May these words be an enduring record of your fame and may the sentiments suggested by the cup itself inspire and comfort you throughout many golden years to come.

Dr. Cohen replied in the following words:

Mr. President, Dear Doctor Delavan, and all you other Fellows of the American Laryngological Association:

You can well comprehend that this is one of the proudest moments of my professional life. My heartfelt thanks well out to you in waves of emotion deeper than I am able properly to voice them. Furthermore, the sweet-voiced tone and tenor of your spokesman's fond laudation has so charmed away the memory of what I intended to say that you must permit me to read it from the manuscript.

Of all the relations in which human beings may reciprocate sentiment, none is more genuine than cordial affection exhibited between men, in witness whereof this loving cup of which I am the recipient in commemoration of the completion of my fiftieth year as a graduate in medicine.

Allow me to pass the cup around the table and request each of you to handle it, so then when it returns to me I may, as it were, feel the impress of all your hands in fond commingling unison.

Many a physician fully entitled to special honors from his colleagues passes away ere a suitable occasion is presented for tendering them, and he dies without having realized the appreciation in which he was held; but it has been my good fortune to have lived long enough to have received several proofs of fondness this year from my medical friends and associates. Firstly, on March 15 last, the fiftieth anniversary of my graduation in the Medical Department of the University of Pennsylvania, I was given a banquet by the Laryngo-Otological Section of the College of Physicians of Philadelphia and a number of former assistants in my clinics; and, just as the toasts were announced, a long box of full blown roses—American Beauties—was presented me with the compliments of a doctor and his wife of the name of Love. That date, March 15, marked, likewise, the thirtieth similar anniversary of two members of the committee on the banquet, both former associates in my clinical services, and both members of this association, the deft-fingered Dr. Watson and the burlier figured Dr. Gibb.

On April 11, I was guest of honor at the annual banquet of the Northern Medical Association of Philadelphia, of which I had been president in 1875, and during the function was presented with fifty half-blown roses—half blown, it was said on their presentation, to indicate that my professional career was only half through.

To-night I am happy in the possession of a substantial token of the fondness of my Brother Fellows of the American Laryngological Association, to last in evidence as long as the imperishable precious material of which it is fashioned—to last, I trust, forever.

On my return home from this meeting it will be shown first to my immediate family, then it is to be taken to my beloved mother, aged, but still youthful in heart and in intellect, to whom I have promised to bring it as soon as I could; and then some disposition will be made to provide for its permanent preservation, probably, if practicable, in the Army Medical Museum in this city of Washington, in which it has been given to me. Thus shall my name, linked with the name of the American Laryngological Association as inscribed upon this loving cup, record to posterity our love for each other as long as the museum shall exist.

Perhaps in no medical society has mutual fondness among its members, based upon mutual fondness for the same subjects of study and work, been more apparent than in this American Laryngological Association. Thirty-three years ago—a generation ago—it was organized in a blaze of enthusiasm by a score or so of ardent students and practitioners of laryngology and its cognate branches, sanguine in the success of their project to place the too little appreciated specialty upon a secure and firm basis. That enthusiasm has been continued by them and their successors to the present; and may it be continued as long as the organization exists.

From the very first annual meeting, as the published records of the transactions attest, the highest standard of ethical conduct and scientific work was aimed at. This standard was bravely sustained in subsequent meetings, and in a very few years the American Laryngological Association was held in great esteem the world over.

In the earlier years of our organization it was deemed wise to keep the number of Fellows within certain limits, so as to invite the co-operation chiefly of those eminently fitted for membership. But the study of laryngology and its allied subjects extended so rapidly that soon a sort of daughter society was organized—perhaps it was rather a sort of step-daughter society—a society that eventually attracted a number of our own members, and which has more recently furnished a number of accession to this association. And the enthusiasm of that society soon outran in one direction the enthusiasm of the step-parent. Its numbers were not limited, and increased with such rapidity that soon branch socie-

ties were organized in the North, in the East, in the South and in the West; and so, in addition to the annual meetings of the society in chief, each of its four sections has an additional annual meeting —and their industry and the scientific work of each year is proportionately increased.

Laryngology is to-day reared on a secure basis, and is in the best repute everywhere. Much of this has been due to the work of the American Laryngological Association as a whole, and to the individual work of its members, their students, their students' students, and their other followers. This claim can be maintained without any depreciation of the excellent work that has been done and is being done by our colleagues on the Continent of Europe and in the Isles of Great Britain.

To those of you who have taken up laryngology since it has become a safe procedure, it may be difficult to realize the obstacles encountered by the older ones who struck out into the new path, when specialties, as a rule, were regarded by many practitioners with little favor, and by the bulk of the profession with no favor at all. We were looked upon, at least in America, with such contumely that we were barely tolerated as honest and reliable practitioners of medicine.

The earliest laryngologists of these United States, at least in Philadelphia, were considered by many of their colleagues as semi-demi-charlatans, or at least as charlatanoids—as one distinguished and witty member of the profession dubbed us. As for myself, I was blackballed in the Academy of Natural Sciences of Philadelphia, much to the surprise of its presiding officer, himself the editor of the *American Journal of the Medical Sciences*, by a few of the medical members who declared me to be engaged in unethical practice, and who had gathered in sufficient numbers purposely to effect my exclusion, and thus punish my presumption. Subsequently I was duly elected, however.

Another instance: Once, when I was in the ampitheatre during a surgical clinic at one of our medical schools, the surgeon on duty introduced me to his class as a man fast leaving the ranks of legitimate practice to become engaged in a narrow specialty. "Why," said he, "he devotes most of his time to a cubic inch of the human anatomy," and then he added, "Some day I suppose he will have specialists confining themselves to diseases of the navel." Nevertheless, the time came when that surgeon sent for me year after year to lecture for him on methods of examining the upper air passages when that portion of his course was reached; and

when he revised the last edition of his famous System of Surgery, I wrote, at his special request, the chapters on Surgery and Surgical Diseases of the Air Passages. He sent me a substantial check for the service, which I returned with a note stating that I had written them for love alone; and then he sent me a charming letter of thanks in reply and two baskets of champagne. That man's statue has been erected here in Washington on the grounds of the Smithsonian Institution; not in consequence of the acknowledgment of his incorrect estimate of laryngology, but in due sequence. He was a great man, a great surgeon, and his very name was GROSS.

But the years of tribulation have long since passed, and when more than two decades ago this Congress of American Physicians and Surgeons was established, in one of whose triennial meetings at the capital of the nation we are now participating, the American Laryngological Association was welcomed as one of its most important components.

May it retain forever the high position it has acquired, and may each Fellow of you in your turn reach your fiftieth medical anniversary in as good health and vigor as merciful Providence has vouchsafed to me, and may you receive as complimentary a memento of the occasion.

Modified Simpson's Tampon to Prevent Nasal Hemorrhage, M. D. STEVENSON, *Jour., A. M. A.* June 4, 1910.

M. D. STEVENSON uses a tampon composed of compressed cotton modified from Simpson's tampon, three inches long by one-half inch wide by one-sixteenth thick, wrapped as in a cigarette with gutta percha tissue, the free edge being gummed down by some sterile ointment except at the ends. These smooth surfaced tampons are easily and usually painlessly removed, and he thinks they are much better than trusting to local medicinal applications in cases of post-operative hemorrhage. Sterile water or salt solution should be dropped at the ends to cause the tampon to swell and fill the passage. Two can be used side by side in very wide fossa and they can readily be narrowed by clipping.

SEPTAL SPUR OPERATION.

BY J. A. PRATT, M. D., AURORA, ILL.

In doing work on the nasal septum we can frequently remove spurs or exostosis and in that way straighten up a septum so that it will not touch the adjacent parts, without submitting our patients to a submuco-perichondrial operation. In removing a spur with the saw, chisel or spoke-shave, if the technic recommended by the present books is followed, a denuded surface as large as the spur is left to be covered by mucous membrane from the edges, or by scar tissue. During this process of healing dried secretions are blown from the nose for weeks and even months, to the great annoyance of the patient.

A submuco-perichondrial removal of the spur has been recommended, but it is little used because it is a tedious precedure, and we all like the easy way, even if we are forgetful of the patient's comfort. For some time I have been performing a simple operation for the removal of spurs or exostosis of the septum, that leaves a muco-perichondrial flap to cover the denuded surface, and only necessitates two treatments following the operation. In many noses we find a small, sharp deviation of the septum, when the concavity is a little past the median line, with a short, sharp shelving or spur in the occluded nostril, which, if it could be sawed off without perforating the septum, would leave a practically straight septum. In these cases this operation can be performed with happy results. Possibly a great many men are doing this operation, but I have never seen it performed or read of it in any book or paper.

TECHNIC. The instruments used are a speculum, a nasal saw, a Freer sharp elevator and a Ballenger septum-knife. The usual method of steralizing instruments, patient and operator is employed. The Freer method of anesthetizing with adrenalin and powdered cocain will be found most satisfactory.

If the concavity is past the median line, an incision is made anterior to the concavity through the muco-perichondrium down to the cartilage, with the elevator the membrane is now separated from the cartilage until the concavity is free, then a small piece of sheet dental-wax is inserted to keep the membrane elevated. The shelf or spur is sawed, in the usual way, about three-fourths through, then with the elevator the muco-perichondriun is elevated

over the spur and above it to a point beyond where the saw would come through, the cut is now finished with the saw and the osteo-cartilaginous piece is removed, leaving the muco-perichondrial flap hanging by its superior border. The wound is now freed from any clots and the flap is adjusted to the denuded surface and covered with a piece of sheet dental-wax, and the nostril packed to hold the wax in position. The same treatment is given to the other nostril. The packing is removed the next day, and the wax the second day. When the concave side does not dip beyond the median line, the simple technic of removing the spur is all that is necessary.

The great fault with the beginner in this work is that he does not remove the spur close enough to the median line, or cuts through the septum; however, in the latter case, the flap will cover the opening. But it is better surgery to elevate the concavity.

The points I have found in favor of this operation are: 1, that all steps are visible; 2, its simplicity; 3, the perfect healing without after treatments.

232 Coulter Block.

The Use of Bismuth-Gauze in Rhinology and Otology. E. PISTRE OF GRENOBLE. *Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.*, April 2, 1910.

Sterilized gauze is insufficient in most cases on account of the odor which develops in 24 hours. Iodoform gauze most generally used is disagreeable on account of its odor and its toxic possibilities. The majority of de-odorized gauze have proved unsuccessful. The subnitrate of bismuth has long been recognized as an excellent external antiseptic, and its microbicidal effects have been abundantly proven. It has no odor nor does it develop irritation of the mucous-membrane. The author has used it successfully in epistaxis and endo-nasal operations, operations on the sinus and the ethmoidal cells with all the benefits of the iodoform gauze, without its disagreeable effects. Also in dressing the cannula in tracheotomies. In his otological work he uses it entirely for otorrheas and he has found it of special benefit in the various modifications of the mastoid operations. SCHEPPEGRELL.